KEEP THESE SHEETS ON TOP OF THE LEFT SIDE OF MAIN FILE!

Information List for Individual Solid Waste Facilities

FACILITY NAME City of Helena Landfill
LICENSE NUMBER 90 **CLASS** II **LIC.TYPE** L
COUNTY Lewis & Clark
CITY Helena
LOCATION DESCRIPTION Located south of BN mainline, north of Lyndale Avenue, east of Carroll College, West of Last Chance Gulch
HOURS OF OPERATION Pending Closure
DATE OF LAST INSPECTION 4/29/95

Application Received 8/28/78
NOD sent 10/4/78
Response Received . . . . . Unknown
Health Officer Notification Sent 11/17/78
Beginning of Thirty-Day Public Notice Period 11/17/78
Health Officer 15-day Review Period Beginning 12/21/78
License Sent to Health Officer for Signature 12/20/78
Validated by Health Officer and Sent to Licensee After 12/21/78
****

Alternative Liner Plan Received . . . . . N/A
Alternative Liner Plan Approved . . . . . N/A
Permitted Burning Site, if so, when approved? . . . . . .
Closure/Post-Closure Plan Received . . . . . (Revised) 4/9/93
Closure/Post-Closure Approved 3/14/94
Environmental Assessment Final . . . . . .
Environmental Impact Statement Final . . . . . .
Ground Water Monitoring Plan Received 11/27/90
Ground Water Monitoring Plan Approved . . . . . .
Date Ground Water Monitoring Commenced . . . . . November 1989
Hazardous **Waste Screening** Plan Received . . . . . .
Hazardous **Waste Screening** Plan Approved . . . . . .
Leachate Collection System Plan Received . . . . . .
Leachate Collection System Plan Approved . . . . . .
License Modification received . . . . . .
License Modification type (i.e., ADC, burn pile, compost, recycling, landfarm) . . . . . .
License Modification approved . . . . . .
Methane Monitoring Plan Received 11/29/95
Methane Monitoring Plan Approved . . . . . .
New Unit Design Received . . . . . .
New Unit Design Approved . . . . . .
No-Migration Petition Received . . . . . N/A
No-Migration Petition Approved . . . . . N/A
Operation & Maintenance Plan Received . . . . . .
Operation & Maintenance Plan Approved . . . . . .
Run-On/Run-Off Plan Received . . . . . .

KEEP THESE SHEETS ON TOP OF THE LEFT SIDE OF MAIN FILE!

Run-On/Run-Off Plan Approved . . . . . .
Sampling and Analysis Plan Received 4/6/94
Sampling and Analysis Plan Approved 4/7/94
Service Area **Expansion** Application Received . . . . . .
Service Area **Expansion** Application Approved . . . . . .
Special Waste Handling Plan Received . . . . . .
Special Waste Handling Plan Approved . . . . . .

Request for Information Received (Date)
Brief Description of Request

Reply (Date)

Request for Information Received (Date)
Brief Description of Request

Reply (Date)

Request for Information Received (Date)
Brief Description of Request

Reply (Date)

Request for Information Received (Date)
Brief Description of Request

Reply (Date)

Date Complaint Received 6/21/93 Date Complaint Resolved 6/22/93
Brief Description of Complaint Concerned about explosive landfill gas generated by landfill.

Date of Reply

Date Complaint Received 1/21/94 Date Complaint Resolved 9/4/96
Brief Description of Complaint Run-off flowing onto YMCA playing fields (a/k/a/ old landfill). Channeled flow flowing onto soil causing cracks.

Date of Reply

Date Complaint Received 5/4/98 Date Complaint Resolved _____
Brief Description of Complaint City is placing solid and hazardous waste from oil rail yard on bike path near Carroll College.

Date of Reply

2c

Office Memorandum

STATE DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

RECEIVED
JUL 12 1983
LEGAL DIVISION

TO : Ellie Parker, Legal Division

DATE: July 11, 1983

FROM : Duane L. Robertson DLR
Solid Waste Management Bureau

SUBJECT : City of Helena - YMCA Soccer Field Agreement

Please review this contract between the City of Helena and the YMCA because the Department is mentioned in two instances. Our main concern is, does this put the Department in any long term liability situation if the landfill begins emitting leachate because of the YMCA not watering according to specified agreements, etc.

The city wants a response from us as soon as possible.

MDHES proposed changes were phoned to Dick Nesbitt on 7/25/83. they were to discuss the agreement at the City Council meeting 7/25/83. DLR

CITY OF HELENA
316 N. Park * City-Co. Admin. Bldg.
HELENA, MONTANA 59623

(406) 442-9920

DATE

☐ **URGENT**
☐ SOON AS POSSIBLE
☐ NO REPLY NEEDED

FILE NO.

ATTENTION

SUBJECT

TO

Duane Robertson
Room A 201 Cogswell Building
Helena, MT 59601

MESSAGE

Here is the proposed City of Helena - YMCA Soccer Field Agrument. Please look it over and let me know if you have any problem the way the Health Department is asked to participate.

SIGNED Vickie D. Mathison

REPLY

DATE OF REPLY

SIGNED

AGREEMENT TO LEASE AND DEVELOP LAND

This lease, made on _____, 1983, between the City of Helena, a municipal corporation in the State of Montana, hereinafter called the City, and the Helena Young Men's Christian Association, a Montana nonprofit corporation, hereinafter called the YMCA.

SECTION ONE
DESCRIPTION, TERM OF LEASE

In consideration of the rents reserved and of the covenants and provisions expressed hereafter, the City agrees to lease to the YMCA, property located at the City Landfill site in Helena, Montana, described as follows:

together with the full power, with approval of the City and the State Department of Health and Environmental Sciences, to lay out, plant, improve, and maintain the property for the purpose of providing outdoor recreational activities to the YMCA's members and the public, as more specifically provided in Section 4. The property is to be held by the YMCA, subject to any rights of way or other easements affecting the property, from _____, 1983, until _____ _____, 200__, a term of 25 years, for use as an outdoor recreation facility and for no other purpose.

SECTION TWO
PAYMENT OF RENT; OTHER USES PROHIBITED

The YMCA agrees to pay the City a nominal rent of One Dollar ($1.00) per year so long as the lands are used for the purposes stated above. If the property is used for any purposes not contemplated in this agreement, the City may terminate this lease and follow the procedures set forth in Section ___.

SECTION THREE
UNDERTAKINGS OF THE CITY

The City has graded the land in that part of the facility designated on the appended map as multi-purpose fields, and has placed topsoil thereon. In consideration of the promises exchanged herein, the City agrees to purchase, or to provide funds up to $13,000 for the purchase of grass seed of a variety, quality, and quantity consistent with standards of state and federal environmental agencies and suitable for park use.

SECTION FOUR
UNDERTAKINGS BY THE YMCA

The YMCA agrees to maintain the entire facility as described in Section One. Maintenance shall include, but not be limited to, watering, mowing, weeding, fertilizing, top dressing with sand, disease and insect pest control, overseeding, aerating, replacement of horticultural practice necessary to insure normal vigorous and healthy growth of grass. The YMCA will provide all labor, equipment, and materials necessary for the planning, surveying, staking and actual improvements as reviewed and agreed upon by the City. The YMCA shall provide proof of adequate available water (well or purchase by the City) prior to development of the site. The YMCA will provide a water monitoring system including stringent control of water applications, periodic measurements of soil moisture and monitoring of peripheral wells to the site as recommended in the Hydrometrics report dated December 3, 1982. Installation and analysis of the test wells shall be the responsibility of the YMCA. Reports on this monitoring shall be submitted to the City of Helena and the State Health and Environmental Sciences, Bureau of Solid Waste, every six months for the first five years of operation of the facility. If no negative impacts are identified in this five year period, reports shall be submitted on a yearly basis thereafter. The monitoring plans and techniques and the watering plans of the YMCA shall be approved by the City of Helena and the Montana State Department of Health and Environmental Sciences, Bureau of Solid Waste (MDHES), prior to development of the site. and must be followed without exception, except for changes requested by either the YMCA or the City of Helena to which both parties, plus the MDHES, agree in writing. In the event that, after the monitoring and/or watering plans have been put into practice, they are determined by the MDHES to be inadequate to protect public health or prevent groundwater pollution, the YMCA will comply with changes in either plan which both MDHES and the City of Helena approve in writing.

SECTION FIVE
NAME

The facility may be known by such name as the YMCA may elect to assign to it.

SECTION SIX
SCOPE OF ACTIVITIES

All activities such as, but not limited to, soccer, softball, volleyball, etc. held on land formerly known as the Helena Landfill located adjacent to the existing Helena YMCA building (see attached description) shall be the responsibility of the Helena YMCA. All activities are to be scheduled by the Helena YMCA with Helena YMCA activities holding priority. Use of these facilities by others are to be permitted as Helena YMCA schedules allow.

SECTION SEVEN
PARKING -- HORSESHOE COURTS

The Helena YMCA will provide parking and restroom facilities during normal Helena YMCA operating hours for horseshoe players on the existing City owned Horseshoe Courts and adjacent to the Helena YMCA. Adequate parking for the new facility shall be provided and constructed according to City Ordinance. If National Guard property is to be utilized for parking, a letter of agreement allowing this use shall be approved by the City Attorney prior to development of the project.

SECTION EIGHT
FEES

The YMCA may charge a fee for the use of said recreational area, which fee would not exceed the cost of the services provided to the members of the community.

SECTION NINE
ACCESS

Traffic access to the Helena YMCA building and landfill recreational facilities shall be planned in accordance with the recommendations in the North Main Environmental Impact Statement. Maintenance shall be the responsibility of the YMCA. The YMCA shall obtain from the National Guard an appropriate legal tool guaranteeing a secondary access off of Lyndale. This access shall meet the approval of the City Attorney before development of the site.

SECTION TEN
EFFECT OF TERMINATION

In the event of termination of this agreement, the YMCA shall remove its personal property from the facility. On the termination of this agreement for any reason, all improvements on facility property affixed to the land will be turned over to the City and become the property of the City.

SECTION ELEVEN
ASSIGNMENT

The YMCA shall not assign this agreement, either in whole or in part, without the prior written approval of the City. The City shall not assign this agreement to a private corporation, firm or individual without the prior approval of the YMCA, except as herein provided.

SECTION TWELVE
MODIFICATIONS

This agreement can only be modified by written instrument bearing the signatures of those persons authorized to represent the governing bodies of the City and the YMCA.

SECTION THIRTEEN
NONDISCRIMINATION

The YMCA shall not discriminate against any employee or applicant for employment, because of race, color, creed, sex, age, or national origin. The YMCA and its employees shall not discriminate because of race, religion, color, ancestry, sex, or national origin against any person by refusing to furnish such person any service or privilege offered to or enjoyed by the general public, nor shall the YMCA or its employees publicize the facilities provided hereunder in any manner that would directly or indirectly reflect on the acceptability of the patronage of any person because of race, religion, color, ancestry, sex, or national origin.

SECTION FOURTEEN
REVERTER
REVERTER

If the YMCA fails to construct the above-referenced recreational facility within two years or fails to comply with any other provisions of this agreement then, in that event, all of the right and interest of the YMCA in the above-described property shall cease and terminate and automatically revert to the City of Helena.

SECTION FIFTEEN
INDEMNITY

The YMCA agrees to indemnify and hold harmless the City, its agents, employees and officer, from and against all claims, damages, losses, expenses and costs of any kind, in any way arising out of any changes in the nature or character of the property by the YMCA.

SECTION SIXTEEN
RENEWAL

The YMCA shall have the right to renegotiate this lease for an additional term of 25 years by giving the City written notice of its intention to renew any time prior to the expiration of this term.

In witness whereof, the parties have executed this agreement _____ _____ on the day and year first above written.

_____
City of Helena

_____
Young Men's Christian Association
(YMCA)

ATTEST:

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201
COGSWELL BUILDING

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

November 15, 1982

Mr. Richard Nisbet
Director of Public Works
City of Helena
City-County Bldg.
Helena, MT 59623

Dear Dick:

We have reviewed the information you have provided regarding expansion of the Helena City landfill into the new area between the BN tracks. We would like to take this time to thank you for the reports, meetings and all the work you and your staff did to properly prepare the information for submittal.

After a complete review of the information, we hereby grant approval for the new area to be used as a Class II sanitary landfill. We feel we must reemphasize the fact that the new area is suitable only if proper controls are exercised to minimize potential for environmental hazards from the fill operation. Specifically, the following controls are contions of our approval for use of the new area:

1) The groundwater monitoring plan must be instituted and conducted in accordance with the August 26, 1982 report from Hydrometrics.

2) Drainage improvements and revegetation will be required as indicated in the September 2, 1982 letter from Don Lewis. All efforts must be made to minimize the flow of rainfall and snowmelt onto the new landfill area.

3) At least 6 inches of compacted earth cover is required over the solid waste at the end of each operating day.

4) At least 2 feet of compacted earth must be applied as final cover over all finished areas. The final two foot layer must be tested to demonstrate that the in-place permeability of the layer is no greater than 1×10^{-5} cm/sec through the two foot layer. At least one test must be taken upon the completion of each trench and prior to revegetation. Results of the permeability tests must be submitted to this bureau as they are made available.

November 15, 1982

Mr. Richard Nisbet, DPW
City of Helena
Page Two

5) Information of depth to groundwater from the existing wells and derived from drilling the new monitoring wells will be provided as available, prior to use of the eastern portion of the expansion area.

6) All cover materials will be selected and applied in accordance with the October 1, 1982 Hydrometrics report. This includes the use of less permeable materials in specified areas. In all cases, the completed fill areas must provide the same degree of protection as ten feet of 1×10^{-3} cm/sec. soil.

7) Lower permeability soils in quantities which can be salvaged will be stockpiled for use as final cover. This includes soil excavated at the site or brought into the site for disposal.

8) No sewage sludges will be landfilled until the belt filter press is fully operational and this department has approved the sludge as acceptable for landfilling.

9) Litter must be controlled at all times.

10) Should any of the monitoring systems or visual inspections show leachate formation is occurring, the city will be asked to prepare an immediate plan of remedial action.

11) Once wells A, B, D and F are complete we will require that the city prepare a cross sectional plan for the landfill expansion area. In order to be useful, this plan, at a minimum, will include a profile of the seasonally high groundwater level, surface elevation, maximum depth of each of the trenches, final grades and other fill information useful for the operation. By predicting exact trench depths, the city will be able to know the following as soon as possible:

a) cubic yards of 10^{-3} cover soil required;
b) Depth and specific permeability of less permeable cover soils required; and
c) cubic yards of less permeable cover soil required.

Since soil and groundwater conditions in the general Helena area are only marginally suitable for solid waste disposal, we encourage the city to actively investigate alternatives to the existing landfill. Acquisition of a landfill placed in more hydrogeologically suitable areas or establishment of a resource recovery facility to lessen the solid waste disposal load is strongly recommended.

Again, we thank you for your cooperation and patience. If you have any questions, please contact us at any time.

Sincerely,

JAMES E. LEITER
Solid Waste Management Bureau
Environmental Sciences Division

JEL:vc
cc: Will Selser, City-Cty. Bldg.,
Hydrometrics - Ms. Jo Messex, City-County Planning Board.
Lewis & Clark County Commissioners

SLC - Helena

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 443-1010

316 NORTH PARK
HELENA, MONTANA 59601

October 28, 1982

Duane Robertson, Chief
Solid Waste Management Bureau
Room A201, Cogswell Building
Helena, Montana 59620

Subject: City of Helena Landfill - phase three

Dear Duane:

After a review of the hydrometrics, Inc. report - Soil evaluation of the City of Helena extended landfill area, October 1, 1982 - we have the following comments and recommendations:

1. Permeability tests using a modified bole hole permeability technique E-18 (USDI, 1980) indicates that the cemented gravel layer meets or exceeds the required 1 X 10 - 3 centimeters per second permeability rate. The soils above the cement gravel layer failed to meet the minimum permeability standard.

2. The water table at pit seven (7) was at ten feet. Groundwater does not reach its peak until the spring runoff in May or June. There is a strong possibility that the water table in portions of the eastern half of phase three will not be able to maintain the minimum of ten foot separation below the bottom of the trench to groundwater.

3. The entire phase three expansion is situated in a recharge zone for the Helena Valley Groundwater aquifer. This aquifer is the source of domestic water for most of the valley residents (see plate one, water resources investigations - open file report 80-1102, United States Geological Survey).

The data currently available indicates that the eastern half of phase three expansion, sites one through seven, may not meet minimum standards for a Class II landfill operation. No landfilling should take place in that area until the groundwater table has been conclusively documented through monitoring during the high groundwater.

It is this department's recommendation that the City of Helena utilize the western half of phase three expansion sites eight through eighteen. This would allow the City of Helena and the State of Montana adequate time to determine groundwater depths.

By the time the City had exhausted the western half of phase three expansion area, resource recovery might be cost effective. This would preclude the need to use the marginal eastern half of the phase three expansion for Class II waste.

We will be happy to discuss this matter further with you and your staff.

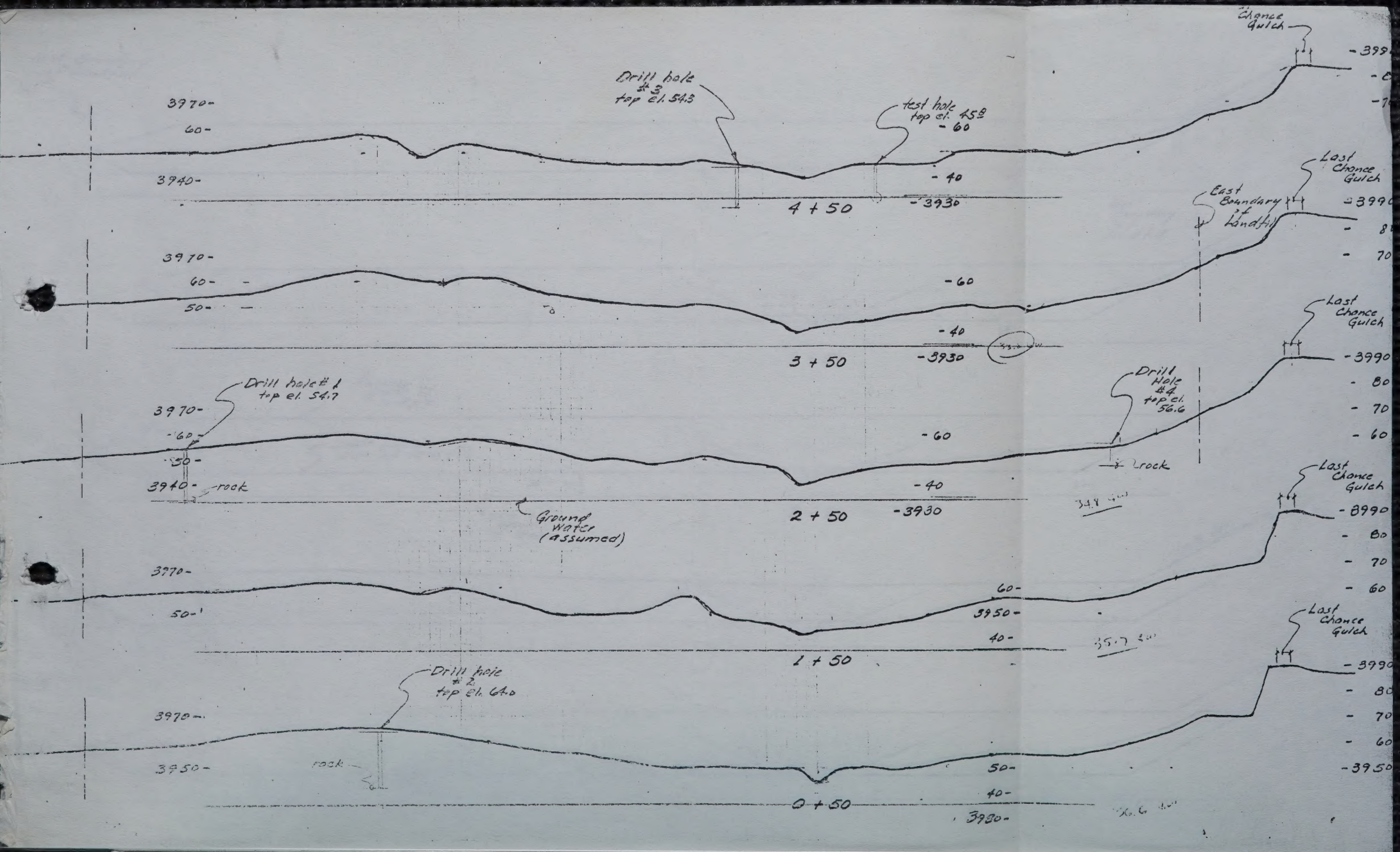
Sincerely,

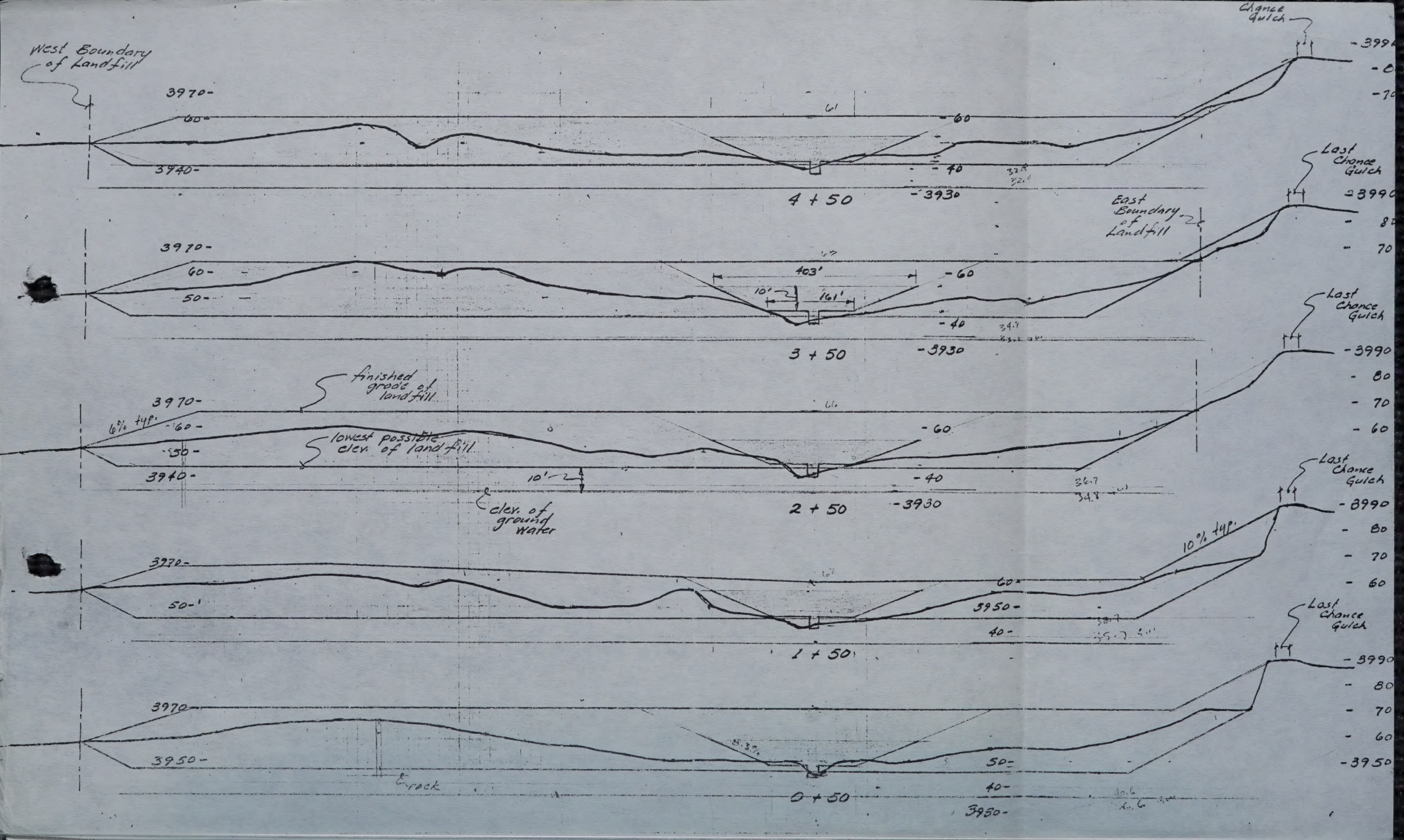
Will Selser

Will Selser, Director
Environmental Health Division

WS/jm

cc: Bob Erickson, Manager
City of Helena


Drill hole #3 top el. 54.3
test hole top el. 45.8
Chance Gulch
Last Chance Gulch
East Boundary of Landfill
4 + 50
3 + 50
Drill hole #1 top el. 54.7
Drill Hole #4 top el. 56.6
rock
Ground Water (assumed)
2 + 50
1 + 50
Drill hole #2 top el. 64.0
0 + 50
3970
3940
3930
3950
3990


West Boundary of Landfill
Chance Gulch
Last Chance Gulch
East Boundary of Landfill
finished grade of landfill
lowest possible elev. of landfill
elev. of ground water
rock
6% +4%
10% +4%
4 + 50
3 + 50
2 + 50
1 + 50
0 + 50
403'
161'
10'
3970
3940
3930
3950
3990
3980
3960

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

A. C. Knight, M.D.
Director

PUBLIC NOTICE

An application for the licensing of a solid waste management system has been submitted to the Montana Department of Health and Environmental Sciences, Solid Waste Management Bureau, for processing. The name and address of the applicant follows:

City of Helena
Civic Center
Helena, Montana 59601

The solid waste management system is located in the NW 1/4 of Section 30 Township 10N Range 3W, Lewis and Clark County, and serves the following area(s): Helena and vicinity.

The application has been reviewed by the department and has been found to be complete. The proposed decision of the department is to:

[X] License

[ ] Conditionally license

[ ] Deny licensing the proposed solid waste management system

The purpose of this notice is to inform the public of the proposed decision of the department and to seek their participation in the decision-making process. Pursuant to ARM 16-2.14(2)-S14100, Section (3)(c)(i), a thirty-day period from the date of this notice will be given for the public to submit written comments to the department concerning the license application. All comments should be addressed to the Solid Waste Management Bureau, 1400 11th Avenue, Helena, Montana 59601. Interested persons may obtain copies of the completed application upon request by enclosing the copying cost of $1.00.

Dated this 17th day of November, 1978.

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

John S. Anderson M.D.
XXXXXXXXXXXX
A. C. Knight, M.D.
Director

November 17, 1978

Mr. Robert Johnson
County Health Officer
201 S. Last Chance Gulch
Helena, Montana 59601

Dear Mr. Johnson:

This correspondence will serve as notice that the Montana Department of Health and Environmental Sciences has received a completed application for the following solid waste management system: Helena solid waste disposal site
This notification is in compliance with the solid waste management rules ARM 16-2.14(2)-S14100, Section (3)(c)(i).

In addition, please find enclosed three public notices. Pursuant to ARM 16-2.14(2)-S14100, Section (3)(c)(i), the local health officer must post one public notice at the nearest post office and two (2) other public buildings serving the geographical area of the proposed solid waste management system.

A copy of this public notice has been sent to the applicant and the area newspaper.

If you should have any questions, please contact this office.

Sincerely,

James E. Leiter
Solid Waste Management Bureau
Environmental Sciences Division

JEL:ao

Enclosures

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

A. C. Knight, M.D., F.C.C.P.
Director

November 17, 1978

Editor
Independent Record
Box 557
Helena, Montana 59601

Dear Sir:

State law requires that all solid waste management systems in Montana be approved and licensed by the Montana Department of Health and Environmental Sciences. I am enclosing a public notice pertaining to our application for the licensing of a solid waste management system in your area. This notice currently is being circulated for thirty days in order to assure public knowledge of the proposed action. I would be sincerely grateful if your newspaper would carry information about this notice as a news release at your earliest convenience. We are making every effort possible to generate public knowledge and interest in this licensing action; and as such I believe your newspaper can provide invaluable assistance in this effort.

If you require further information, please call or write this office. In advance, I thank you for your assistance.

Sincerely,

DUANE L. ROBERTSON, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

DLR:WJP:ao

Enclosure

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

January 17, 1979

Mr. Will Selser, R.S., Director
Environmental Health Division
Lewis and Clark City-County Health Dept.
201 S. Last Chance Gulch
Helena, Montana 59601

Dear Will:

I am in receipt of the validated Helena solid waste management system license and your letter of December 29, 1978.

We appreciate your comments and sympathize with your department's position on the disposal of the Helena sewage treatment plant sludge. We share the Lewis and Clark City-County Health Department's concern for the safe disposal of this sludge.

The Soil Conservation Service classifies the soils found at the Helena landfill as very permeable sand, gravel and cobbles. The permeability of these soils has been further increased by gold dredging operations.

This soils data also indicates moderate to high groundwater levels are found within the Helena landfill site. SCS Soil Scientist Dave Jones, in his September 9, 1976 analysis of the site, stated the protection of this groundwater is essential to insure the quality of the domestic water supplies in the Helena valley.

In light of this information, this bureau does not feel the semi-liquid waste disposal limitation can be waived from the solid waste management system license for the Helena landfill. Helena's validated license is, therefore, being forwarded to the city with the limitation still imposed.

We are sorry this limitation will affect the agreement your department had with the city for sewage sludge disposal at the Helena landfill site. This bureau has been meeting regularly with the Water Quality Bureau to resolve the sewage sludge disposal problem. The Water Quality Bureau in turn is working closely with the city of Helena on developing an acceptable sludge disposal site.

If we can be of assistance to your department in this matter, please contact us.

Sincerely,

John C. Geach, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

JCG:ao
cc: Don Lewis
Dick Nisbet

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

January 17, 1979

Mr. Will Selser, R.S., Director
Environmental Health Division
Lewis and Clark City-County Health Dept.
201 S. East Cannon Guich
Helena, Montana 59601

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If we can be of assistance to your department in this matter, please contact us.

Sincerely,

John C. Gauch, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

JCG:ao
cc: Don Lewis
Dick Mabet

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 442-6230

201 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601

December 29, 1978

Duane Robertson, Chief
Solid Waste Management Bureau
SDHES
1400 - 11th Ave Suite A
Helena, Mt. 59601

Dear Duane;

Enclosed is the validated Landfill license for the City of Helena. The Health Officer has no objections to the issuing of this license.

It should be noted, however, that the conditions of licensure which do not allow the acceptance of septic tank pumpings or other semi-liquid wastes in this landfill has a direct effect upon the course of action the City of Helena agreed upon in its' November 16, 1978, letter to this department (see enclosure). Specifically the City agreed not to dispose of any sewage sludge at the site north of the treatment facility until the analysis of that site was completed. They agreed that they would utilize their City Class II Landfill site for any disposal of sewage sludge until such time as the site north of the treatment plant could be properly classified. The aforementioned conditions on their City Landfill license would appear to preclude their ability to fulfill that agreement.

In as much as the City has indicated that it will not need to transfer and dispose of sewage sludge until the spring of 1979, this may not present a problem. It would seem, however, that the necessary analysis of the disposal site north of the treatment plant be conducted with all due haste in light of the conditions attached to the City's Landfill license.

If necessary, we would be happy to discuss this matter with you.

Sincerely,

Will Selser

Will Selser, R.S.
Director
Environmental Health Division

WS/cp

1-3-79

PROPOSED OPERATION & MAINTENANCE PLAN

DAYS AND HOURS SITE OPEN

Closed Sundays

Summer hours November - April 8 a.m. to 5 p.m. Monday - Saturday
Winter hours May - October 9 a.m. to 6 p.m. Monday - Friday 8-5 Sat.

ACCESS CONTROL AND LITTER CONTROL AND TRAFFIC CONTROL

All ingress and egress is across a scale a the one and only entrance with the gate being locked during off hours. A six (6) foot high wire mesh fence encircles the entire area.

EQUIPMENT USED AT SITE

One (1) 816 caterpillar compactor
One (1) 977 caterpillar track loader
Compacted and covered daily.

All types of waste are accepted at the City of Helena Landfill with the exception of junk vehicles, septic tank waste and large dead animals.

PROPOSED FINAL USE OF LAND

Phase I which is owned by the City of Helena, is being developed by the City as a recreation center. (Re: soft ball fields, jogging track, etc.)

Phase II and Phase III are owned by the BN Railroad and leased by the City of Helena. I do not know the railroad's future plans for that area.

RESPONSIBLE PERSONS

Al Thelen, City Manager
R. A. Nisbet, Director Public Utilities
Don Lewis, Suerintendent Sanitation Department

LOGAN STREET
STREET
STREET
MAIN
LYNDALE
56
55
54
53

approximately a 20 acre parcel
in the N 1/2 of the NW 1/4 Section 30,
Township 10, Range 3.

All that part of the right of way of the Burlington Nor Inc. rawy comp in the No East Quarter No west Quarter (NE1/2 NW1/2 and in the Northwest Quarter Nor East Quarter (NW1/2 NE1/2) of Sec 30, Township 10 North, Range 3 West of the Montana Principal Meridian, in the City of Helena, County of Lewis & Clark, State of Montana, located as shown in hatched red on the Exhibit, "A

Subject to that certain Easement dated October 17, 1859 granted by Great No Rawy Comp.

Site: Helena County: Lewis + Clark Co.

Date original application received: 8-29-78 3-30-78

Application complete: Yes _____ No X

Missing: ____ name and business address of applicant

X legal and general description of the proposed location(s)

____ total acreage of proposed site

____ population size and centers to be served by the proposed site

____ pertinent water quality information

X geological and soil information

____ present uses of adjacent lands

____ zoning information

____ maps, drawings, etc., if necessary

____ name of individual operator

X proposed operation and maintenance plan

Date additional information requested: 10-3-78 4-6-78

Ninety (90) day limit date: _____

Date completed application received: 11/12/78

Fifteen (15) day health officer date: 12/2/78

Health officer notice sent date: 11/17/78

Date proposed decision: _____

Date public notice sent out: 11/17/78

Thirty (30) day limit date: 12/17/78

Final Decision:

X License _____ License conditionally _____ Not license

12-20-78 Date

Date conditional license expires: _____

Explanation of conditions: NO STP OR SEMI LIQUID WASTES

Date license sent to health officer for signature: _____

Fifteen (15) day limit date: _____

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

A. C. Knight, M.D., F.C.C.P.
Director

October 4, 1978

Mr. Don Lewis
Superintendent
City of Helena
Civic Center
Helena, Montana 59601

Dear Don:

Thank you for submitting the solid waste management system license application for the Helena sanitary landfill. In reviewing this application, I note it does not contain sufficient information to complete our licensing evaluation. The following information will be needed.

1. Legal description of the landfill site.

2. Soils profile information. A soils profile is required to a depth of at least ten feet below the lowest point wastes will be disposed of in the landfill. This can usually be obtained by requesting local Soil Conservation Service personnel visit the site and view test holes or land cuts. Following their field visit a soils profile report can be prepared to attach to your license application form.

3. Proposed operation and maintenance plan which addresses the items listed on page 2 of the application form.

Please resubmit Helena's application with this additional information as soon as possible.

If you have any questions, please contact this office.

Sincerely,

John C. Geach

John C. Geach, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

JCG/lb

Enclosure

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

April 6, 1978

Mr. Don Lewis
Sanitation Superintendent
City of Helena
Civic Center
Helena, Montana 59601

Dear Don:

I am in receipt of your application for a solid waste management system license for the city of Helena's refuse disposal area. The application was found to be incomplete in the following areas:

a) Legal description

b) General location (i.e. direction and distance or address of site)

c) Operation and maintenance plan

Items which must be addressed in the operation and maintenance plan can be found on the reverse side of the license application.

Please submit the requested information as soon as possible and if I can be of any assistance, feel free to contact me.

Sincerely,

Paddy R. Trusler, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

PRT/lb

Enclosure

cc: Will Selser, County Sanitarian, 201 South Last Chance Gulch, Helena

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

April 6, 1978

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Sanitation Superintendent
City of Helena
Civic Center
Helena, Montana 59601

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a) Legal description

b) General location (i.e. direction and distance or address of site)

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Sincerely,

Paddy R. Trusler, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

PRT/lb

Enclosure

cc: Will Selser, County Sanitarian, 201 South East Chance Gulch, Helena

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Environmental Sciences Division
Solid Waste Management Bureau
Helena, Montana 59601

APPLICATION FOR SOLID WASTE MANAGEMENT SYSTEM LICENSE

Name of applicant: City of Helena

Address: Civic Center Helena Montana

Telephone number: 442-9920

This application is for a: (X) solid waste disposal site, ( ) container site *(green box and bulk containers)*, ( ) transfer station, ( ) resource recovery or processing facility, ( ) other *(please specify)* _____

Community of Helena, County of Lewis + Clark, located in South-W quarter section of Section 19, Township _____, Range _____. "See Attached Map"

General description of location: South of B.N. mainline, North of Lyndale Ave, East of Carroll Collage, West of Last Chance Gulch,

Total acreage in site: 38 Usable acreage: 30

Population to be served by solid waste management system: 24,000 +

Will bridges and roads support loaded vehicles? (X) Yes ( ) No

Is site subject to flooding? ( ) Yes (X) No

Are natural drainages found within the site? (X) Yes ( ) No

Depth to groundwater: 30'

Distance from public or private water supplies: 1/4 mile

Are there springs located within one (1) mile of site? ( ) Yes (X) No

(If "yes", describe proximity to site): _____

Soil profile to a depth of ten (10) feet below lowest point solid waste will be deposited *(i.e. solid waste disposal sites only)*:

Clay - Rock - Sand

Operation and maintenance plan: *(please attach - i.e. days and hours site open, access control, equipment used at site, how traffic will be directed and controlled, general description of solid waste management system, maintenance schedule regarding handling and disposal of wastes, provisions for litter control, types of waste to be accepted, proposed use of land after fill area completed, person(s) responsible for operation and maintenance of solid waste management system).*

Present use of adjacent land: (X) residential, ( ) agricultural, ( ) other

(If "other", please specify): Commercial

Does solid waste management system conform to present zoning or other applicable land use plans? (X) Yes ( ) No

I certify that the above-described solid waste management system will be constructed and/or operated in accordance with Section 69-4001 through 69-4009, R.C.M. 1947, and the rules adopted pursuant thereto, and in accordance with conditions which have or may be imposed in the license.

SIGNATURE: [illegible]

TITLE: Superintendent

DATE: 8/23/78

RECEIVED

AUG 28 1978

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

HELENA

8/23/78

— City of Helena Disposal Site

2 & C

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

P. O. Box 970, Bozeman, Montana 59715

SUBJECT: EVT--Pollution and Waste Management Report
Helena Sanitary Landfill Expansion site Evaluation
Sec. 19 & 30, T10N, R3W

DATE: 9/9/76

TO: Arnold E. Quale
District Conservationist
Soil Conservation Service
Helena, Montana

As requested by the city of Helena, an investigation and evaluation of their proposed sanitary landfill expansion was made during August, 1976. Don Coffman, Ground Water Hydrologist, USGS, Helena, was consulted.

The site should not be used for the disposal of Group I (toxic, etc.) wastes. The site is considered suitable for Group II wastes if ground water separation is maintained and surface water control measures are taken as recommended. There is a low pollution potential to surface waters and a moderate pollution potential to several nearby wells. These wells are not critical supplies and could be converted to city water service.

Water passing through buried refuse leaches out contiminants. This "leachate" may drastically alter the quality of surface and ground waters. Sanitary landfill siting and operations should minimize the amount of water that can reach the refuse and should provide for the control or attenuation of any leachate produced.

Site Evaluation

The existing landfill is located on the lower end of Last Chance Gulch where it begins to merge with the Helena Valley. The proposed expansion area is adjacent, north and north-northeast of the existing landfill. See Sketch Attachment 1.

Geology: Stratigraphically the site is underlain by the Helena Limestone of Precambrian Age. The Helena Limestone is predominately a gray, argillaceous limestone which weathers to a light brown or yellow. Locally, the limestone is very dolomitic. The limestone or dolomite can be seen outcropping in several roadcuts above the landfill.

Overlying the Helena Limestone are thick deposits of alluvial-colluvial origin. These materials have been deposited at the mouth of Last Chance Gulch as fan debris and stream depositing alluvium. These coarser deposits of sand, gravel, and cobbles have been dredged at sometime in the past for the gold they contained. Apparently the dredging operation went down to a clay lens which carried the gold. The resulting tailings

are a loosely consolidated mass of sand, gravel, and cobbles. Any silt or clay that may have been present was probably washed away in the dredging process. The tailings are considered to be more permeable than the undisturbed deposits.

Ground Water: The Helena Valley is an important source of ground water for domestic, stockwater, and irrigation purposes. The Helena Valley includes about 95 sq. miles of land surface. Helena lies on the southern edge of the valley. Basin-fill deposits in the valley vary in composition but studies indicate that water moves freely through basin-fill acquifer. Recharge from Last Chance Gulch is probably minor when compared to Prickly Pear Creek, Silver Creek, and Ten Mile Creek. However, any source of pollution which reaches last Chance Gulch, whether it be from septic tanks or the landfill, will reach the ground water in the Helena Valley.

Landfilling operations are presently staying well above the ground water table. Because of the highly permeable materials in this area, ground water table fluctuations are very minimal.

Surface Water: Intermittent surface flows from the upper part of Last Chance Gulch enter a subsurface conduit at the south side of Helena. Urban storm runoff enters this conduit along the developed length of the gulch and is then conducted under the present landfill by a 60 inch concrete pipe. The pipe is to be extended northward through the proposed expansion area. The majority of year around flow in the pipe must be from ground water infiltration as there is a steady base flow without surface flow into the inlet and storm runoff. An examination of the outlet indicates that some water flows along the outside of the pipe in addition to the internal flow.

Runoff from the West Lyndale Street viaduct area and the city shop area is concentrating at the toe of the landfilled slope and eroding cover from the pipe outlet. Completion of a HUD floodplain study should indicate the frequency of flood that the pipe can handle. If the pipe cannot handle the flood flow and runoff from the landfilled area, then a lined open channel carrying the excess flood flow and the site's runoff is needed to prevent infiltration to the refuse.

Irrigation of vegetation in the planned parks and recreational fields on top of the completed landfill is another source of water that may reach the landfill.

Conclusions and Recommendations

Ground Water: Any leachate produced by the landfill can enter the ground water unhindered and with little if any mitigation. As the leachate travels

with the ground water into the tailings, it will fan out and become diluted. There is a moderate pollution potential to wells in Section 19 due to urban runoff and any leachate from the landfill. North of Section 19 toward Ten Mile Creek adequate dilution should occur.

To minimize leachate production, inert coarse construction and demolition debris should be placed in the areas shown in the sketch, Attachment 1. This type of fill will allow ground water passage without backup. A layer of finer grained material should be placed over the debris to provide a physical filter between the refuse and the ground water.

Surface Water: Sediment to the surface waters is not a problem at this time as slow tortuous flow through the tailings settles out the sediment. With increasing development and drainage of the tailings, finite channels will be made. Sediment control at the site will then be important. The city is already planning on using sediment basins for on site runoff. As excess irrigation water may be a source of water reaching the refuse, future development requiring a minimum of irrigation should be planned on the landfill. Final grading and landscaping should be designed to prevent ponding of surface water. Surface runoff and flood flows (that the subsurface drain pipe may not handle) will erode cover from the landfill, exposing and saturating the refuse. A lined open channel is recommended to extend from the viaduct to the pipe outlet. The capacity should be determined after results of a future HUD floodplain study are known.

Soils: Ideal materials for refuse cover are non-existent in the expansion area. The clean washed sands, gravels and cobbles of the placer and dredge tailings are very permeable. Limited quantities of these materials will be available as excavation depths will be restricted by the high water table. Finer grained cover material will have to be imported as is done in the present operation.

Monitoring: Selected wells in Sections 18 and 19 should have a periodic chemical analysis to detect any detrimental effect on the use of the ground water. It may take several years before leachate is produced in significant qualities. Base data on several indicator constituents of the well water quality may be obtained from the USGS publication, "Appraisal of the Quality of Ground Water in the Helena Valley, Montana," Water-Resources Investigations 32-73.

Alternate Sites: As land prices are increasing and imported fine grained soils will be needed during landfilling and final reclamation, it is suggested that land suitable for future landfilling be obtained now for fine grain borrow.

An excellent source of these materials exist where there will be no ground water problems for sanitary landfilling. The area south of Highway 287 between Helena and E. Helena contains lake beds of poorly consolidated gravels, sands, silts, and clays. Assistance in selecting a site in this area is available if desired.

B. B. Gemmell
State Conservation Engineer

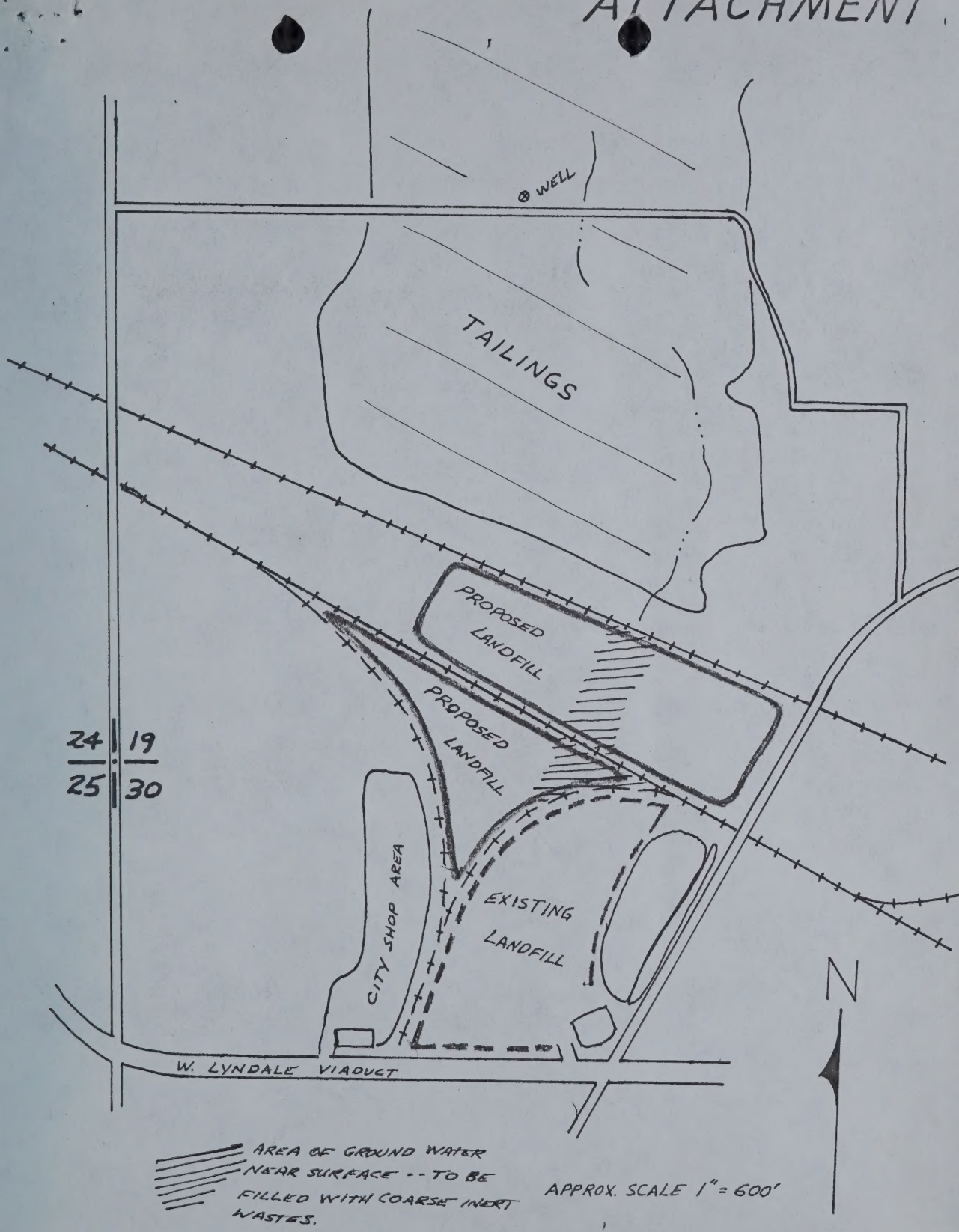
David J. Jones
Sanitary Engineer
Field Support Staff

Sherman A. Sollid
Geologist
Field Support Staff

Attachment

cc:
McAndrew, AC, SCS, Bozeman
Coffman, USGS, Helena

ATTACHMENT



SKETCH-HELENA SANITARY LANDFILL

RECEIVED
SEP 20 1976
CITY of HELENA
ENGINEER

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 970, Bozeman, Montana 59715

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State Conservation Engineer

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Field Support Staff

Sherman A. Sollid
Geologist
Field Support Staff

Attachment

cc:
McAndrew, AC, SCS, Bozeman
Coffman, USGS, Helena

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
P.O. Box 1696
Helena, Montana
59601

June 16, 1971

David L. Thomas, R.S.
City-County Sanitarian
Lewis and Clark City-County
Health Department
35 Eleventh Avenue
Helena, Montana 59601

Dear Dave:

As requested in your letter of May 18, 1971, a brief description of the geology and ground-water flow in the area of the City of Helena landfill disposal site follows.

The area of interest lies mostly in the NE 1/4, NW 1/4, NW 1/4, sec.30, T.10 N., R.3 W. The area is between Carroll College on the west, old Highway 91 on the east, Highways 10W and 91 on the south and the Burlington-Northern Railroad tracks on the north. Topographically the area is in the bottom of Last Chance Gulch, which is about an eighth of a mile wide. Last Chance Gulch begins at the intersection of Grizzly and Orofino Gulches, near the southern edge of Helena. Last Chance Gulch runs through Helena and loses its identity on the north side of the Burlington Northern Railroad where the drainage disappears into piles of dredgings.

In order to understand the geology of the area of the landfill, it is useful to briefly mention the geology of the Helena Valley. Most of the floor of the Helena valley is underlain by Tertiary "lake-bed" deposits. These deposits are at least 500 feet thick and are composed mainly of light-colored clay interbedded with sand and gravel. They were deposited during Tertiary time in a lake that filled a low area caused by folding and faulting. The lake was bordered on the east, west, and south by mountains formed by intrusion of igneous rocks and the folding and faulting of old sedimentary rocks. About 10-15 million years ago the lake drained and streams draining into the Helena valley began to carry large amounts of coarse-grained material. Most of the coarse material

was deposited on top of the "lake-bed" deposits as alluvial fans. The alluvial fans are composed of sand, gravel, and cobbles and are thicker near the mountains. During the last 10-20 thousand years the load of the streams has decreased, the streams have downcut slightly, and have deposited a relatively thin layer of alluvium along their channels. The alluvium is indistinguishable from the alluvial fan deposits.

The area of the landfill is underlain by alluvium and alluvial fan deposits that rest in a shallow valley cut into the Tertiary "lake-bed" deposits. The alluvium and fan deposits are composed of silt, sand, gravel, and cobbles. Near the landfill these deposits are reported to be no more than 30 feet thick and the average thickness is probably less because the "lake-bed" deposits are exposed in the bottom of Last Chance Gulch directly east of Carroll College. Both the alluvium and the fan deposits have been thoroughly placered. During the placer operations the material was excavated, washed, and replaced. The net result has been to sort the material according to grain size -- in places the material consists almost entirely of gravel, in others sand, and in still others mostly silt. One would not expect any particular type of material to extend very far, because each placer claim probably was worked independently of the others. North of the railroad tracks dredging operations resulted in more nearly uniform reworking of the sand and gravel. After the area beneath the landfill was placered it was partly covered by refuse. Long-time residents of the city report that since 1920 the area has been intermittently used as a dump by many individuals. Thus, material reworked during placering is underlain by "lake-bed" deposits and overlain in most places by fill composed of refuse. The present landfill operation results in adding another layer of refuse over the older layer of refuse.

Ground-water flow in the landfill area is confined primarily to the alluvium beneath Last Chance Gulch. The underlying "lake-bed" deposits seem to be of relatively low permeability and serve to keep water in the alluvium from flowing downward into deeper horizons. Water in the alluvium flows northward and probably some of it makes its way to the dredging piles. Because the alluvium has been placered, the water probably tends to flow in irregular paths formed by randomly connected zones of well-sorted, coarse-grained material. Water in the dredging piles moves north and flows into the alluvial-fan deposits north of the dredgings. Water in the alluvial-fan deposits may eventually flow into Tenmile Creek. In places along Last Chance Gulch and in the dredging piles the water table is at land surface and evaporation from the ponds and transpiration by plants discharge ground water.

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Ground-water flow in the landfill area is confined primarily to the alluvium between Lake Chamoso Dairy. The underlying "lake-bed" deposits seem to be of relatively low permeability and serve to keep water in the alluvium from flowing downward into deeper horizons. Water in the alluvium flows northward and probably some of it makes its way to the draining pits. Because the alluvium has been placered, the water probably tends to flow in the alluvium, which formed by randomly connected zones of well-sorted, coarse-grained material. Water in the draining pits moves north and flows into the alluvial-fan deposits north of the arroyos. Water in the alluvial-fan deposits may eventually flow into the Tijuana River. In places along Lake Chamoso ditch and in the draining pits the water table is at land surface and evaporation from the ponds and transpiration by plants discharge ground water.

Ground water in the alluvium along Last Chance Gulch is recharged by precipitation on the alluvium, by runoff from the City of Helena, and by storm sewer drainage from the city. One of the city's storm sewers drains into the bottom of the gulch near the north end of the landfill. Downstream from the storm sewer outlet the alluvium seems to be nearly saturated and the water is ponded just north of the Burlington-Northern Railroad.

Before the city's present sewer system was installed residents report that untreated sewage was discharge into Last Chance Gulch slightly upstream from the landfill. The liquid flowed to the area being dredged and was used to float the dredge. It seems safe to assume that before the present sewer system was installed ground water was contaminated in Last Chance Gulch, the dredgings, and between the dredgings and Tenmile Creek. Sampling, chemical, and bacteriological analyses will be necessary to determine the extent of the remaining contamination, if any.

I hope the above information will be useful. The U.S. Geological Survey has a cooperative program with the Montana Bureau of Mines and Geology and answering requests is one of the services of this program.

Sincerely yours,

Don Coffin

Donald L. Coffin

ground water in the alluvium along East Grande Dalen is recharged by precipitation on the alluvium, by runoff from the city of Helena, and by storm sewer drainage from the city. One of the alley's storm sewers drains into the bottom of the gulch near the north end of the landfill. Downstream from the storm sewer outlet the alluvium seems to be nearly saturated and the water is ponded just north of the Burlington-Northern Railroad.

Before the city's present sewer system was installed residents report that untreated sewage was discharged into East Grande Dalen Gulch near Prospect from the landfill. The liquid flowed to the area, being reabsorbed and was used to flush the drainage. It seems safe to assume that before the present sewer system was installed ground water was contaminated in East Grande Dalen, the drainage and between the drainage and Tenmile Creek. Sampling, chemical and bacteriological analyses will be necessary to determine the extent of the remaining contamination, if any.

I hope the above information will be useful. The U.S. Geological Survey has a cooperative program with the Montana Bureau of Mines and Geology and answering requests is one of the services of this program.

Sincerely yours,

Donald L. Garth

SOIL CHARACTERISTICS
SURROUNDING THE
HELENA DEMONSTRATION SOLID WASTE PROJECT

The nature of the soils in the exact location of the Solid Waste Project are somewhat lacking due to the fact the area was mined by placer process in the early period of the settlement of the Helena area. You will note on the attached soils photo we have the placer mined area delineated PM. The Soil Conservation Service has however mapped under the standard survey system the surrounding soils. The areas adjacent to the solid waste project as outlined on the photo are described as follows:

137B - Musselshell gravelly loam, 2-5% slopes

These are Brown soil zone Calcisols characterized by strongly calcareous profiles throughout except for the surface few inches. Other profile features include generally loamy textures, gravel fragments of limestone, argillite, quartzite occur throughout the profile and usually increase with depth from less than 15% coarse fraction in the surface to as much as 40-50% in the substrata. However, the location of the highest amount of gravel in the profile varies due to stratification within the profile giving rise to some very gravelly lenses interlayed with less gravelly strata.

For agricultural use these soils are primarily used for pasture and range with some limited cropping under effective water erosion control treatments.

Mapping Unit 137C is the same soil on a 5-9% slope.

The Musselshell soil shows only slight hazards for Building Sites, has a moderate hazard for septic tank and filter fields due to a moderate permeability in the range of 0.20 to 6.30 inches per hour. It presents a somewhat moderate hazard to road and parking lot use due to the problems of susceptibility to frost heave and consolidation characteristics. Slope must be considered as a problem here also.

These soils would present a moderate hazard to picnic and playground areas as they are sticky and slippery when wet due to the clayey texture.

Landscaping problems is primarily the high lime content of the soil.

For sanitary landfill sites undisturbed Musselshell soils present the moderate permeability problem .20 to 6.30 inches per hour and other problems associated with clayey textures, slippery and stickiness.

From the broad standpoint of land use it would appear that using soils such as the Musselshell for building sites and landfill wastes systems is wise use for the long term needs of the country.

These sloping rocky soils have limited agricultural production capabilities.

The minor hazards from various soil characteristics in most cases can easily be corrected with proper planning and design of built up areas.

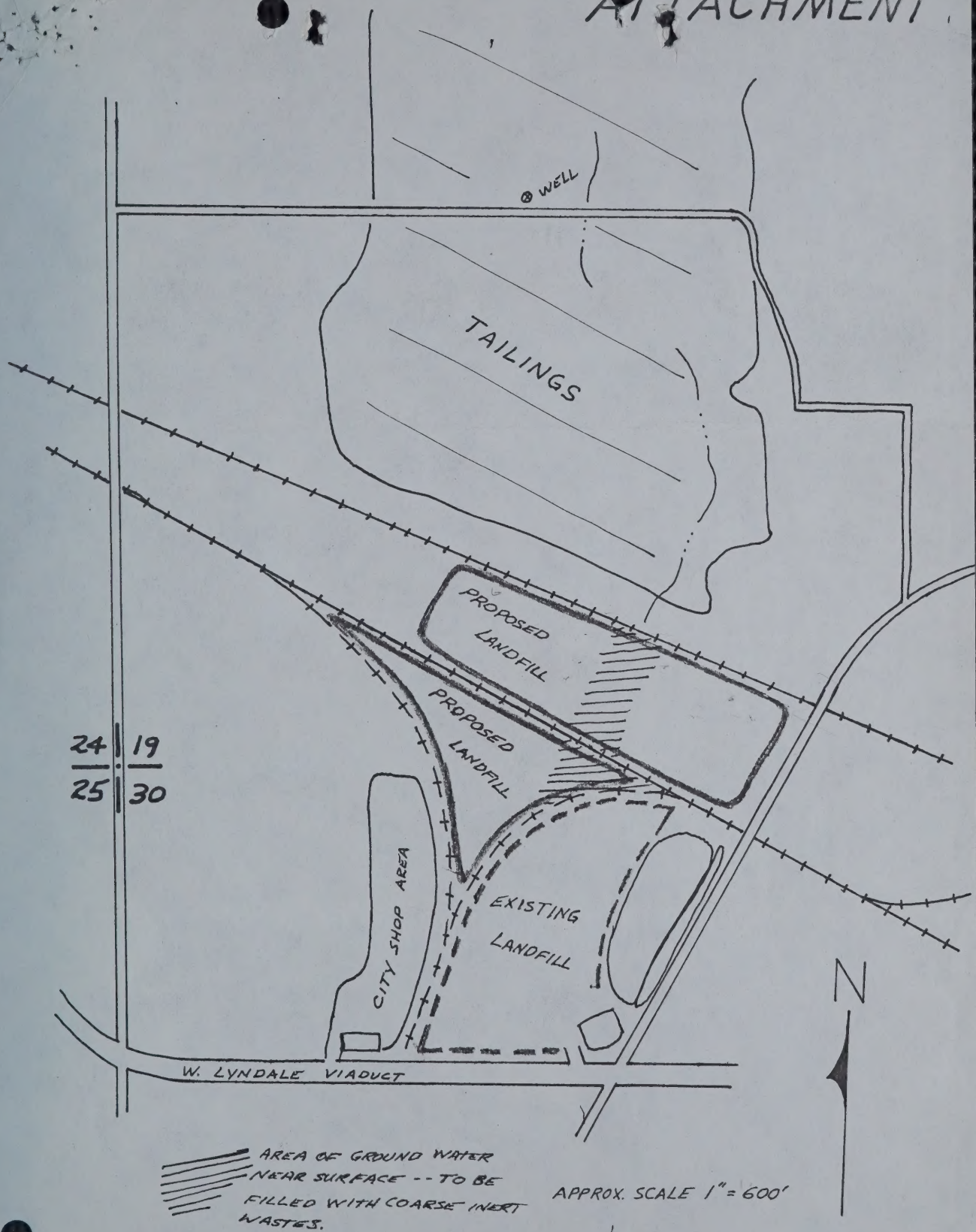
At present, in this country, population demands have not put heavy stress on cropland production. However projection of population growth indicates that land managers whether private or public had best be making plans to conserve our better soils for cropland production.

Built up areas at present is taking in excess of 1 1/2 million acres out of agricultural production each year. It would be of the nations interest to confine these to the more unproductive areas.

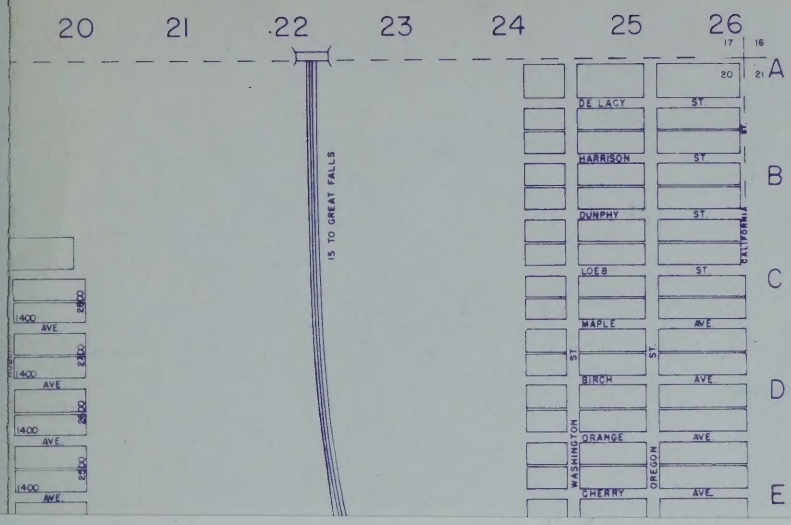
Ken Bollard

Ken Bailey

ATTACHMENT



SKETCH-HELENA SANITARY LANDFILL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LOEB
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MAPLE
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BIRCH
AVE.
ORANGE
AVE.
CHERRY
AVE.
WASHINGTON
ST.
OREGON
ST.
CALIFORNIA
15 TO GREAT FALLS
1400
AVE.
2800

MAP OF
HELENA MONTANA

90

County L+C
Facility & # Old Helena
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Landfarm
Liner
Methane
O & M
Run - On
Other: General

Montana Department of
ENVIRONMENTAL QUALITY
Judy H. Martz, Governor
P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

May 25, 2004

Marie Zitnik
2966 Magnolia
Helena, MT 59602

RE: Nature Park, Gold Avenue, Helena, Montana, CVID #8117

Dear Marie:

Thank you for sharing your concerns about Nature Park with the Department of Environmental Quality (DEQ). I visited the site on April 30, 2004 and have enclosed a copy of my field investigation report for your reference. During my investigation, I found no obvious solid waste or water quality violations; however, Nature Park may be impacted by the City of Helena's storm water drainage system and the closed landfill located directly south of the park. The storm water drainage system will soon be regulated by the DEQ and the closed landfill is continuously monitored and regulated by the DEQ. Following is a brief description of each.

Storm water runoff from the Last Chance Gulch area enters Nature Park through a series of culverts and ravines on the south end of the park. Most of the storm water then infiltrates through the soil to groundwater. Another storm drain at the north end of the park carries storm water to the north side of Custer Avenue where it drains to open ground. As you have noted, storm water may carry pollution, including oil and grease from roadways, pesticides from lawns, sediment from construction sites, and carelessly discarded trash. Because of the potential for pollution, the Environmental Protection Agency (EPA) recently required each state to adopt rules to regulate municipal storm water discharges.

In response to the EPA requirement, Montana adopted Administrative Rules of Montana (ARM) 17.30.1111. The rule required existing municipalities to submit storm water discharge permit applications no later than March 10, 2003. The DEQ has received the City of Helena's permit application. This permitting effort will require the city to develop, implement, and enforce a storm water management program that includes public involvement. If you would like more detailed information on the municipal storm water permit process, please contact Brian Heckenberger with the DEQ's Water Protection Bureau at 444-5310 or refer to the DEQ's website at http://www.deq.state.mt.us/wqinfo/MPDES/StormWater/ms4.asp. If you would like more information on the City of Helena's storm water drainage plan, please contact Ryan Leland, City of Helena Engineer, at 447-8433.

Groundwater quality in and around Nature Park is continuously monitored in conjunction with the closed landfill site south of the park. I have attached some maps and monitoring data from the closed landfill. The enclosed "Vicinity Map" shows the location of the closed landfill in relation to Nature Park. The enclosed "Study Area and June 2003 Potentiometric Surface" Map shows the locations of several wells used to monitor the closed landfill's effect on groundwater. The attached analytical results are from monitoring wells MPC-2 and HL-90-2 near Nature Park and the Infiltration Gallery located in Nature Park. Any contamination from solvents, degreasers, paints, thinners, fuels, and some oils would show up in the Volatile Organics and/or the Semi-Volatile Extractables measurements. Please note that all of these parameters measured below the laboratory's detection limit, meaning that they either were not present in the sample, or they were present in such low levels that the laboratory could not measure them. If you have questions or want more information on the closed landfill site, the attached analytical data, or the DEQ's regulation of the closed landfill, please contact Pat Crowley in the DEQ's Solid Waste Program at 444-5294.

You mentioned that you and your brother would be interested in helping clean up Nature Park, particularly by using plants to help deal with any contamination that may exist. This practice is called Phytoremediation and more information is available on the web at: http://www.cee.vt.edu/program_areas/environmental/teach/gwprimer/phyto/phyto.html#plant. Before you do any work in the park, make sure you receive approval from the City of Helena by contacting Randy Lilje with the City of Helena Parks Department at 447-8463.

Some excellent kids' websites can be found at http://www.epa.gov/kids/ and at http://www.regionalassociations.org/grimecrime.cfm. I've included two copies of the "Grime Crime" workbook for you and your brother. Thank you for taking an active interest in protecting our environment and good luck with your science studies. If I can be of additional help, please call me at (406) 444-3937.

Sincerely,

Victoria A. Marquis

Victoria A. Marquis
Environmental Enforcement Specialist
Enforcement Division
(406) 444-3937; fax (406) 444-1923
E-mail: vmarquis@state.mt.us

Enclosure

cc: Ryan Leland, Engineer, City of Helena, 316 N. Park Ave., Helena, MT 59623
Randy Lilje, City of Helena Parks Department, 316 N. Park Ave., Helena, MT 59623
Brian Heckenberger, DEQ Water Protection Bureau
Pat Crowley, DEQ Solid Waste Program

MAILED
2-25-04 gh

Montana Department of
ENVIRONMENTAL QUALITY

Judy Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

February 25, 2004

Mr. John Rundquist
Public Works Director
City of Helena
316 North Park Avenue
Helena, MT 59623

Dear John:

Enclosed is the tip fee information you requested.

If I can be of further assistance in this matter, please feel free to contact me. My direct phone line is 406-444-5294 and my email address is pcrowley@state.mt.us. The Solid Waste Regulatory Program is a part of the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Waste Management Section.

Sincerely,

Pat

F. Patrick Crowley
Solid Waste Regulatory Program Manager

Montana Department of
ENVIRONMENTAL QUALITY

Judy Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

MAILED
12-26-02

December 17, 2002

Mr. Robert Henkel
Old Glory Project Manager
P.O. Box 1142
Helena, MT 59624

RE: OLD GLORY FLAGPOLE FOOTER EXPLORATION TRENCH
City of Helena Class II Landfill (Lic. # 90)

Dear Mr. Henkel:

On December 10, 2002, I met with you and Bill Pierce (Pierce Construction) at the City of Helena Class II landfill to observe and assist during backhoe excavation of the subgrade beneath the location of the proposed Old Glory Flagpole footer (within the rock wall circle on the north end of the YMCA north parking lot).

Starting within the rock wall circle approximately 9 ft inside the westerly perimeter, the trench extended due eastward for approximately 21 ft to the western edge of the centerline road/path, exposing the subgrade to a depth of approximately 13 ft (see enclosed field notes).

The exploration uncovered what may be the eastern boundary of an existing landfill trench that slopes steeply toward the west, separating buried solid wastes beneath the soccer fields to the west from what appears to be undisturbed fluvial gravels or possibly fill (see enclosed photo) to the east. Relative to the western edge of the centerline road/path that bisects the rock wall circle, the refuse-gravel boundary is located approximately 6-ft west at the surface and slopes steeply to approximately 9-ft west at 13-ft deep (see section on enclosed field notes). The depth to the bottom of the landfill trench remains unknown.

The presence of waste and methane gas beneath the area may need to be considered in the final design of the project to assure stability and safety. All solid waste excavated for placement of structural fill must be removed to the transfer station. The structural fill may replace the landfill cover.

Please feel free to contact me at the Permitting and Compliance Division, Community Services Bureau, Solid Waste Program: Voice 406.444.4725, email *tstepp@state.mt.us* or FAX 406.444.1374.

Sincerely,

Tim Stepp
Solid Waste Program

Encl: Field notes, photo
Cc: Chuck Hanson, City of Helena Engineer; Roger Foster, Morrison & Maierle; Bill Pierce, Pierce Construction
File: **Lic#90**/Class II Landfill/City of Helena/General Correspondence
Path: G:\CSB\S w s\engineering\helena\OldGlory_1202.doc

MAILED

INITIALS TS DATE 12/17/02

SW OUTGOING CORRESPONDENCE

NEW APPLICATION	Initial / Date
Janet H	
Rick T	
HAC	

INSPECTIONS	Initial / Date
Pat C	
Janet H	
Rick T	
HAC	

CLOSURES	Initial / Date
Pat C	
Janet H	
Rick T	
HAC	

FEES	Initial / Date
Janet H	
Rick T	
HAC	

COMPLAINTS	Initial / Date
Pat C	
Janet H	
Rick T	
HAC	

GROUND WATER	Initial / Date
Pat C	
Janet H	
Rick T	

GEN CORRESPONDENCE	Initial / Date
Pat C	PC 12/17
Janet H	JH 12-17
Rick T	RT 12/18/02
Jon D	JD 12/18/02

MISCELLANEOUS	Initial / Date

NO. 6848 DATE.ENTERED 02-05-98

AUTHOR

TITLE LEWIS AND CLARK COUNTY MAP - CITY OF HELENA URBAN AREA PLAN

SW LIC.NO 90 SW DATE RECEIVED 01-01-80

GUIDANCE DATE 01-01-80 DOCUMENT LOCATION SW-MAP CASE

STATUS DIR.NO

CHECKOUT DATE RETURN DATE

CHECKED OUT TO WHOM:

NO. 6841 DATE.ENTERED 02-04-98

AUTHOR

TITLE LEWIS AND CLARK COUNTY MAP - CITY OF HELENA GROUND WATER CONTOURS

SW LIC.NO 90 SW DATE RECEIVED 03-13-84

GUIDANCE DATE 03-13-84 DOCUMENT LOCATION SW-MAP CASE

STATUS DIR.NO

CHECKOUT DATE RETURN DATE

CHECKED OUT TO WHOM:

NO. 6843 DATE.ENTERED 02-04-98

AUTHOR

TITLE LEWIS AND CLARK COUNTY MAP - CITY OF HELENA
BOUNDARY SURVEY LAND TRANSFER FROM BN TO CITY OF
HELENA

SW LIC.NO 90 SW DATE RECEIVED 12-05-94

GUIDANCE DATE 12-05-94 DOCUMENT LOCATION SW-MAP CASE

STATUS DIR.NO

CHECKOUT DATE RETURN DATE

CHECKED OUT TO WHOM:

NO. 6642 DATE.ENTERED 12-02-97

AUTHOR

TITLE LEWIS AND CLARK COUNTY MAP - CITY OF HELENA YMCA
VENTILATION

SW LIC.NO 90 SW DATE RECEIVED 12-10-96

GUIDANCE DATE 03-27-96 DOCUMENT LOCATION SW-MAP CASE

STATUS DIR.NO

CHECKOUT DATE RETURN DATE

CHECKED OUT TO WHOM:

City of Helena
316 N. Park Avenue
Helena, Montana 59623

RECEIVED
JUN 27 2000
MONTANA
DEPT. OF ENVIRONMENTAL QUALITY
COMMUNITY SERVICES BUREAU

June 27, 2000

Mr. Rick Thompson
Permitting and Compliance Division
Department of Environmental Quality
1520 East Sixth Avenue
Helena MT 59620

RE: Helena Landfill - Subject of June 30 Meeting

Dear Mr. Thompson:

The main subject to be discussed at the June 30, 2000, meeting pertains to the modification of the clay cap and modification of the slope of the last unit closed in the Helena landfill.

As you know, the city is considering making the old landfill area usable as a city park in the next few years as part of its open space and recreation plan. There is a proposal to place several soccer fields on top of what was the final unit of the city landfill. That is the area between the two railroad tracks and directly east of the present transfer station. The slope of the site results in a ten-foot elevation difference between the north and south sides of the proposed area with the south side being the high end. To level the site, it would take approximately 370,000 cubic yards of imported material. The cost of importing that much material makes the project extremely expensive and may even prohibit moving ahead with that portion of the project.

A proposal has been suggested to temporarily remove the clay cap covering the unit and regrading the landfill to soccer field tolerances and then replacing the cap. Over the cap would be placed approximately one foot of engineered fill and one foot of topsoil upon which grass would be planted.

The city has requested this meeting to discuss the ramifications of such a proposal in terms of cost, landfill closure requirements and any other issues the Department of Environmental Quality might foresee.

We look forward to hearing your views and suggestions at the Friday meeting.

Sincerely,

Randy Lilje

Randy Lilje
Director of Parks and Recreation

c Bob Robinson, Consultant
Tim Burton, City Manager
John Rundquist, Public Works Director

L+C 90

Montana Department of
ENVIRONMENTAL QUALITY

Marc Racicot, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • E-mail: www.deq.state.mt.us

December 6, 1999

MAILED
12/7/99

Willie Miller
City of Helena Transfer Station
316 North Park Avenue
Helena, MT 59624-0002

Dear Willie,

I was at the transfer station on Sunday, December 5, 1999, and picked up one of the fliers for the holiday closures that we noticed in the newspaper last week. I will add this to your operation plan file. There is no need to do any additional notification.

If you need to contact me about this, my direct phone line is 406-444-5294 and my email address is pcrowley@state.mt.us.

Sincerely,

Pat

F. Patrick Crowley
Solid Waste Regulatory Program Manager

File: L&C county/Helena Transfer Station (#320)/ ops plan
Path: G:/CSB/Sws/O&M/Helena transfer hours

MAILED

CITY OF HELENA
NOTICE OF CHANGES IN HOURS

Effective January 1, 2000, the Solid Waste Transfer Station will be closed on all holidays.

The holiday closures come in response to a City Commission request that the City examine ways to reduce costs in the solid waste budget, to limit the need for future rate increases.

The Transfer Station will be closed on the following dates:

New Year's Day	Saturday, January 1
Martin Luther King, Jr. Day	Monday, January 17
President's Day	Monday, February 21
Memorial Day	Monday, May 29
Independence Day	Tuesday, July 4
Labor Day	Monday, September 4
Columbus Day	Monday, October 9
Election Day	Tuesday, November 7
Veteran's Day	Friday, November 10
Thanksgiving	Thursday, November 23
Christmas	Monday, December 25

CITY OF HELENA
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Columbus Day	Monday, October 9
Election Day	Tuesday, November 7
Veteran's Day	Friday, November 10
Thanksgiving	Thursday, November 23
Christmas	Monday, December 25

City of Helena
316 N. Park Avenue
Helena, Montana 59623

City Attorney's Office
Tel: (406) 457-8595

County L+C
Facility & # Helena 90
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Other: Min-Night Side
Landfarm
Liner
Methane
O & M
Run - On

Deq Metcalf Legal
APR 22 1999
PO Box 200901

April 19, 1999

John North
Chief Legal Counsel
Dept. of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

RE: Closure of Helena Landfill - Deed Notation

Dear John:

Thank you for your assistance in helping the City of Helena comply with the deed notation requirement of ARM 17.50.530(1)(i)(i) through the letter commitment to record the notation as soon as it is legally possible to do so.

The problem we have in complying with the deed notation requirement at this time is that the landfill being closed consists of numerous parcels, some of which do not appear of record in the Clerk & Recorder's office. The Burlington Northern and Sante Fe Railway Company conveyed the eastern part of the abandoned spur line that bisects the landfill to the City. Recognizing the many title problems in this area, we had the entire landfill and other adjacent city-owned tracts surveyed and incorporated into one large tract identified as Tract B-3. The simplest way for us to legally define the landfill parcel is by use of this new tract designation of Tract B-3. Tract B-3 includes all of the closed landfill and additional city-owned land that does not contain landfill. The abandoned eastern spur line that bisects this tract does not contain landfill material.

Since Tract B-3 includes the abandoned spur line recently donated to the City, I cannot file the certificate of survey until the property taxes that constitute a tax lien against the spur line are paid in full. BNSF is not willing to pre-pay these taxes.

John North
April 19, 1999

Until recently, when we were informed that we needed to record a deed notation in order to close the landfill, I was not going to file the new certificate of survey or record the donation deed until after the taxes were paid. Since there is now an urgency in this matter, I propose that until I can file the certificate of survey, which is a prerequisite to recording the deed notation, I agree to record the deed notation as soon as is legally possible. A proposed deed notation is enclosed. In exchange, DEQ would consider this agreement to record as the equivalency of recording and for the purposes of considering the landfill officially closed, the 30 year closure obligation would commence upon receipt of this letter commitment.

If this is acceptable and in accordance with my understanding from our conversation on April 16, 1999, please let me know.

Thanks again.

Sincerely yours,

DAVID L. NIELSEN, City Attorney
DLN/ks
c: Dennis M. Taylor, City Manager
Kim Milburn, Public Works Director

John Smith
April 10, 1993

Until recently, when we were informed that we needed to record a deed restriction in order to close the landfill, I was not quite so fully the new court clerks or anyway to receive the position that until after the last cows died. Since there is now an opening in this account, I propose that until I can file the [illegible] [illegible] which in a [illegible] to recording the deed restriction, I plan to record the deed restriction as soon as is legally possible. A proposed deed restriction is enclosed. In exchange, Old [illegible] agrees that [illegible] to record as the equivalency of recording and for the purpose of completing the landfill officially closed, the 10 year closure obligation, would commence upon receipt of this letter [illegible].

If this is acceptable, and in accordance with my understanding from our [illegible] on April 10, 1993, please let me know.

Thank again,

Sincerely yours,

Kevin L. Stevens, City Attorney

Encl:
cc: Dennis W. Bryant, City Manager
Rick Williams, Public Works Director

PUBLIC NOTICE OF LAND USED AS A LANDFILL FACILITY

The City of Helena, a municipal corporation organized and existing under the laws of the State of Montana, hereby notifies the public that a large part of the following described property was used by the City of Helena as a landfill facility and its use is restricted under section 17.50.531(1)(c)(iii), Administrative Rules of Montana (1999) and applicable laws and rules of the State of Montana.

The property previously used as a landfill facility is described as follows:

Tract B-3, according to the Certificate of Survey filed under Document No. _____ in the records of the Clerk and Recorder of Lewis and Clark County, Montana.

DATED this _____ day of _____, 1999.

CITY OF HELENA, MONTANA

By_____
DENNIS M. TAYLOR, City Manager

ATTEST:

By_____
DEBBIE HAVENS, City Clerk

STATE OF MONTANA)
) ss.
COUNTY OF LEWIS & CLARK)

On this _____ day of _____, 1999, before me, the undersigned, a Notary Public for the State of Montana, personally appeared **DENNIS M. TAYLOR and DEBBIE HAVENS,** the City Manager and City Clerk for the City of Helena, Montana, known to me or proved to me to be the persons who executed the foregoing instrument and acknowledged to me that they executed the same in such capacities.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.

_____
Notary Public for State of Montana
Residing at Helena, Montana
My Commission expires 4/30/99.

SEAL

Helena I.P #90
Ops

GUARDIAN OF THE GULCH

City of Helena

RECEIVED
FEB 23 1995
Montana Department of Health
and Environmental Sciences
Waste Management Division

February 21, 1995

Mr. James Wilbur
Dept of Health & Environmental Sciences
Solid Waste Program
PO Box 200901
Helena MT 59620

Dear Jim:

This letter is a follow up to my January 4, 1995 letter to you regarding our stock piling of tree trimming and brush, movement of solid waste, and the use of street sweepings, among other subjects.

The City of Helena completed the tree and brush chipper operation on February 2, 1995 through the use of our contractor "Waste Reduction Operations". The chips are in the process of being transported to our contract composter "Good Humus" and to the Lewis and Clark landfill (Site E) for use as a daily cover.

The City has continued to monitor the solid waste and sludge transport to Site E and continue to detect no liquids or other debris escaping the trailers during shipment.

The City is evaluating the use of street sweepings in our recycle process. Most of the street sweepings that are picked up this time of year are the result of sanding operations during winter snow and ice storms. We purchase uncontaminated sand and gravel (at approximately $3.50/ton) for this process. It is generally picked up by our vacuum sweepers not long after its distribution by our sanders. Here in Helena we experience frequent freeze and thaw cycles during the winter that leads to frequent sanding and sweeping operations. It would not appear that the sand and gravel used would pick up distinguishable amounts of contamination during these periods that would cause it to be classified as a Class III waste. It appears to us that it is poor economics to place this material in a landfill at $22.00/ton and poor ecology to use precious landfill space to a material that has better uses elsewhere (i.e., as pipe bedding and as road base).

Therefore, we request that you re-classify street sweepings that are the result of storm sanding and gravel operations to a non-hazardous material for use in beneficial operations.

Sincerely,

Kim C. Milburn, P.E.
Public Works Director

KCM:skw

c Bill Verwolf
Will Selser
Bill Michalson
Eric Griffin
Bob Robinson
Chuck Hanson

316 N. Park, Helena, Montana 59623
Phone: (406) 447-8000

RECORD OF COMPLAINT

ROUTED TO: Pat C
Carol U. CU
CU

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID AND HAZARDOUS WASTE BUREAU
SOLID WASTE PROGRAM

Close 9-4-94
City finalized closure
FPC

Date: 1/21/94 Time: 1:50 pm

Received by: Lara Dardo

Method of Receipt: ___ Field Y Telephone ___ Office ___ Mail

Name of Complainant: John Arrigo

Address: WQB

Telephone Number: 444-2406

Does He/She Wish to Remain Anonymous: —

Name of Owner or Responsible Party: City of Helena Class II Landfill

Location: Helena

Telephone Number: 447-8455 License No.: 90

Nature of Complaint:

What: Last night walked by YMCA parking lot and saw runoff flowing onto playing fields (AKA old landfill). Channeled flow flowing onto soil causing cracks.

When: On going Where: By parking lot

Evidence (pictures, etc.): —

Violation Citation? —

Referred to: _____ for action.

Suggested Action: Check it out with an on-site visit.

****

Date	Action Taken	Investigator

BEYOND DE VOORTLAAN, [illegible]

DEPARTMENT OF HEALTH AND ENVIRONMENTAL [illegible]
SOLID AND HAZARDOUS WASTE BUREAU
SOLID WASTE PROGRAM

Date: [illegible] Time: [illegible]

Received by: [illegible]

Method of Receipt: ___ Field ✓ Telephone ___ Office ___ Mail

Name of Complainant: [illegible]

Address: [illegible]

Telephone Number: [illegible]

Does Person Wish to Remain Anonymous: ___

Name of Owner or Responsible Party: [illegible]

Location: [illegible]

Telephone Number: [illegible] Alternate No.: [illegible]

Nature of Complaint:

What: [illegible]

[illegible]

When: [illegible] Where: [illegible]

Evidence (photos, etc.): ___

Violation Citation: ___

Referred to: ___ For action.

Requested Action: [illegible]

Date Action Taken Inspector/Worker

Ops plan — ① Helena Transfer Stat. ② Old Helena l.f.

RECEIVED
JUN 12 1996
Montana Department of Environmental Quality
Waste Management Division

City of Helena

June 11, 1996

Pat Crowley
Dept. of Environmental Quality
2209 Phoenix Ave.
Helena, MT 59601

Dear Pat,

In reference to our previous phone conversations about the pilot wood waste program currently taking place at the City Transfer Station - here's the most recent update.

- The existing pile of wood waste will be ground sometime before June 19th (hopefully the week of the 11th). Greg Schmid from Johnson Bros. Recycling will be onsite with the tub grinder to help separate treated wood waste from untreated so that we do not jeopardize Stone Container's air quality conditions.

- Johnson Bros. is investigating other options for treated wood waste - we will determine if we will continue to accept it in this program after our first grinding of the wood waste.

- The entire program will be evaluated after this first batch is ground. I will let you know when we intend to begin grinding so that you can give us your input also.

If you need to talk to Greg Schmid (406)549-7677 or me about any of this, feel free to give us a call.

Sincerely,

Kathy Goroski

Kathy Goroski
Recycling Coordinator

c: Ted Hill, Environmental Engineer

316 N. Park, Helena, Montana 59623

Phone: (406) 447-8000

City of Helena

June 11, 1996

Joe Crowley
Dept. of Environmental Quality
2209 Phoenix Ave.
Helena, MT 59601

Joe:

In reference to our previous phone conversations about the pile wood waste program currently taking place at the City Transfer Station - here's the most recent update:

- The existing pile of wood waste will be moved somewhere before June 19th (hopefully the week of the 11th). Craig Bennett from Johnson Bros. Excavating will be coming with the tub grinder to chip/grind the wood waste. I am interested to see how we do not jeopardize Silver Creek's air quality concerns.

- Johnson Bros. is investigating other options for treated wood waste - we will determine if we will continue to accept it in this program after our first grinding of the wood waste.

- The entire program will be evaluated after the first year is ground. I will let you know when we intend to begin grinding so that you can give us your input also.

If you need to talk to Craig Schmid (406)449-7577 or me about any of this, feel free to give us a call.

Sincerely,

Kathy Gerwick

Kathy Gerwick
Recycling Coordinator

cc: Ted Hill, Environmental Engineer

316 N. Park, Helena, Montana 59623 Phone: (406) 447-8470

City of Helena Landfill Meeting - Nov. 30, 1995

NAme	Representing	Phone #
Jim Wilburn	DEQ/WMD	444-1430
Ted Heil	City of Helena	447-1505
PAT POTTS	DEQ	4-1430
Don Dilliard	DEQ/WMD	444-1430
Pat Crowley	"	"
Kim MILBURN	City of Helena/PW	447-8426
Mike Wignot	Hydrometrics	443-4150
STEVE DOWNS	HYDROMETRICS	443-4150

City of Helena Landfill Meeting - Nov 9, 1995

Name	Representing	Phone #
James Wilbur	DEQ/WMD	444-1430
Ted Hoi	City of Helena	447-1575
David Hull	City attorney	447-1528
Mike Wignot	Hydrometrics	443-4150
Jon Dilliard	DEQ/WMD	444-1430
Katherine Orr	DEQ/WMD	444-2630
Pat Corley	DEQ/WMD	444-5284
Kim Milburn	City of Helena	447-8426
Steve [illegible]	Hydrometrics	443-4150
Pat Potts	DEQ	444-1430

DEPARTMENT OF ENVIRONMENTAL QUALITY

LEGAL UNIT

MARC RACICOT, GOVERNOR

STATE OF MONTANA

July 13, 1995

Mr. Kim C. Milburn
Director of Public Works
City of Helena
316 N. Park
Helena, MT 59623

Dear Mr. Milburn:

The Waste Management Division of the Montana Department of Environmental Quality, formerly the Montana Department of Health and Environmental Sciences, has asked me to respond to your letter of June 22, 1995, insofar as the request in it for a hearing before the Board of Health, now the Board of Environmental Review.

The letter that you received from James Wilbur, dated May 22, 1995, detailing the results of an inspection conducted by Mr. Wilbur and Ms. Dando on April 29, 1995, does not constitute an order to take corrective action within the meaning of Section 75-10-227, MCA, and is not appealable to the Board of Environmental Review. If at some point the Department does issue an administrative order to take corrective action, it will be captioned as an administrative order, signed by the Department Director or his designee, and it will reference Section 75-10-227, MCA, as the basis for the order.

It is clear that you wish to present your views concerning the applicability of the recently adopted solid waste regulations to the landfill. In this regard, perhaps you would like to request a meeting or to indicate in writing to the Department your reasoning that the rules do not apply.

The Department deems the City of Helena class II landfill subject to all requirements in light of the fact that the landfill was operating and accepting wastes after the effective date of the amendments to the rules and did not complete closure by the required date.

Very truly yours,

Katherine J. Orr
Counsel, Department of
Environmental Quality

City of Helena

RECEIVED
DEC 0 1 1993
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

November 29, 1993

L&C. County
City of Helena
Class II Landfill
closure file

Mr. Roger Thorvilson
Acting Bureau Chief
Solid and Hazardous Waste Bureau
State of Montana
836 Front Street
Helena MT 59620

Dear Roger:

The dedication ceremony for the City of Helena Solid Waste Transfer Station as been rescheduled for Wednesday, December 8, 1993 at 11:00 a.m. The transfer station is located at 1975 N. Benton.

The dedication ceremony will be held outside so you may want to wear winter clothing. Refreshments will be served indoors after a brief ceremony.

Sincerely,

Richard A. Nisbet

Richard A. Nisbet, P.E.
Director of Public Works

RAN/SKW/skw

c Hill
Manager

invitatn.ts

316 N. Park, Helena, Montana 59623

Phone: (406) 447-8000

City of Helena

RECEIVED
NOV 1 0 1993
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID AND HAZARDOUS WASTE BUREAU

November 8, 1993

Mr. Roger Thorvilson
Acting Bureau Chief
Solid and Hazardous Waste Bureau
State of Montana
836 Front Street
Helena MT 59620

Dear Roger:

I want to invite you to a dedication ceremony for the City of Helena Solid Waste Transfer Station. The ceremony will be held on Tuesday, November 23, 1993 at 10:00 a.m. The transfer station is located at 1975 N. Benton.

Since the dedication ceremony will be held outside, please wear winter clothing. Refreshments will be served indoors after a brief ceremony.

I appreciate your support and the work you have done on this project. I hope to see on November 23.

Sincerely,

Richard A. Nisbet, P.E.
Director of Public Works

RAN/JMP/skw

c Hill
Manager

invitatn.ts

316 N. Park, Helena, Montana 59623

Phone: (406) 447-8000

GUARDIAN OF THE GULCH

City of Helena

November 8, 1993

Ms. Lara Dando, Specialist
Solid & Hazardous Waste
Dept. of Health & Environmental Sciences
PO Box 200901
Helena MT 59620-0901

Re: Helena Transfer Station

Dear Lara:

I am responding to your October 18, 1993 letter. Please be advised that the retention pond is now complete. The City will continue to place the final clay cover over the entire landfill until weather prohibits it. We will keep you advised.

Sincerely,

Richard A. Nisbet, P.E.
Director of Public Works

RAN/skw

316 N. Park, Helena, Montana 59623

Phone: (406) 447-8000

Commissioners
Kay McKenna, Mayor
Margaret Crennen
Tom Huddleston
Colleen McCarthy
Mike Murray

William J. Verwolf
City Manager

GUARDIAN OF THE GULCH

City of Helena

City-County
Administration Building
316 North Park
Helena, MT 59623

Phone: 406/447-8000

December 23, 1992

RECEIVED
DEC 23 1992
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID AND HAZARDOUS WASTE BUREAU

Jim Wilbur
Solid and Hazardous Waste Bureau
836 Front Street
Helena, Montana 59620

Dear Mr. Wilbur:

On December 21,1992 a fire occurred at the City of Helena Landfill. The Helena Fire Department was notified immediately and responded within five minutes. They were able to suppress the fire despite high winds blowing. Approximately, 1500 gallons of water was used in the effort. I am confident that due to frozen ground and absorption into the garbage, no water leached into lower levels of refuse. After being certain that the fire was extinguished, all material involved was pushed approximately four feet higher into a portion of refuse that had already been compacted for the day. Thus, the possibility of leaching was further reduced.

It is my belief, that the source of the fire was a commercial load that came from somewhere in the industrial tract east of town. The driver of the load stated that he could smell something hot but was unable to locate anything. It was only after dumping the load and exposing it to the wind that the fire ignited.

I believe that every effort was made on our part to minimize any effect this fire may have had on the Landfill.

Sincerely,

William R. Miller

William R. Miller
Sanitation Foreman

File: Lewis & Clark
City of Helena
LF

WRM:ldw
sani\dec21fir

ROUTE SLIP

DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES

TO: DATE: 2/28/92

1. Jon D JD
2. Roger RCT
3. Dunne DHR

- [x] Approval
- [ ] Note and Return
- [ ] Prepare reply
- [ ] As requested
- [ ] Comment
- [ ] Note and File
- [ ] Signature
- [ ] For your information
- [ ] Necessary Action
- [ ] Investigate
- [ ] See Me
- [ ] Per Conversation

REMARKS:

Deliver - 2/28/92 JW

FROM: JW

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES
Solid and Hazardous Waste Bureau
Solid Waste Program
STAN STEPHENS, GOVERNOR (406) 444-1430
FAX #(406) 444-1499
STATE OF MONTANA
OFFICE LOCATION: 836 Front Street Helena, Montana
MAILING ADDRESS: Cogswell Building Helena, MT 59620

February 28, 1992

Fritz Zettel
Helena Fire Dept.
316 N. Park Ave.
Helena, MT 59623

Subject: Permission to stage a fire scene at the Helena Landfill

Dear Fritz:

This letter is to acknowledge your request to stage a scene for a crime reenactment at the City of Helena landfill then entails a small fire using 3m absorbent pads. I understand that the Helena Fire Department personnel will be on location and will extinguish the fire using dry chemicals. The Department has no objection to this one time activity taking place at the landfill as long as safety precautions are observed to prevent any spread of the fire.

Sincerely,

James Wilbur

James Wilbur
Solid Waste Program

cc: Dick Nesbit, City of Helena

ROUTE SLIP

DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES

TO: Proof ~~87~~ Jim JO

DATE: 11/5/91

1. Patti ✓
2. Roger RCL
3. Dwayne DHL

- [x] Approval
- [ ] Comment
- [ ] Necessary Action
- [ ] Note and Return
- [ ] Note and File
- [ ] Investigate
- [ ] Prepare reply
- [ ] Signature
- [ ] See Me
- [ ] As requested
- [ ] For your information
- [ ] Per Conversation

REMARKS: final letter to City of Helena

RE: Landfill Final Recommendations

Sent 11/7/91

FROM: S.T.

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

STAN STEPHENS, GOVERNOR

FAX #(406) 444-1499

STATE OF MONTANA

OFFICE LOCATION: 836 Front Street
Helena, Montana

MAILING ADDRESS: Cogswell Building
Helena, MT 59620

Solid & Hazardous Waste Bureau
Telephone: (406) 444-1430

City of Helena LF L&C Co.

November 5, 1991

City of Helena
Dick Nisbet, Director of Public Works
City of Helena
City-County Building
316 N. Park Avenue
Helena, MT 59623

Mr. Nisbit:

Thank you for your prompt handling and reporting of the recent fire at the City of Helena landfill facility. We do need to address a couple of items.

We realize it is not feasible to check every pick up location for hazardous or volatile materials, however your drivers should have a procedure to follow should they suspect irregularities with the load. The pick ups on the route in question seem innocuous, but it may be good to keep an eye on them.

The timely response by the Fire Department seems to have minimized the amount of water that was required to control the burn. Generally spraying water over a landfill is unacceptable. It is our hope that in the future all landfill employees and fire fighting personnel are familiar with landfill fire protocol and that there are suffocants available onsite to extinguish any unforseen fires.

I have enclosed a recent article on fighting landfill fires taken from Waste Age magazine.

Feel free to contact us if you have any questions or comments.

Sincerely,

Ed Thamke

Edward A. Thamke
Solid Waste Program

cc. Will Selser City-County Health Dept., P.O. Box 1723,
Helena, MT 59624
enc. Fighting Landfill Fires

MEMORANDUM

TO: Jim Wilbur

FROM: Victoria Lynne VL

RE: Soil disposal at the Helena Landfill

DATE: October 25, 1991

Work at the Helena Super America Station has started this week and has resulted in 50 to 60 cubic yards of gasoline contaminated soil. Mark, of Delta Environmental, stated that Mike Gerschner has made arrangements with Willie Miller of the Helena City Landfill to dispose of the soil there. I had some concerns about that since I had thought that the landfill was not accepting this type of material. I told Howard Reid, the county sanitarian, and he is pursuing this. Chris Deveny, of the LUST section, is the contact person on this site if you have any questions.

Commissioners
Russell J. Ritter, Mayor
Rayleen Beaton
Tom Huddleston
Rose Leavitt
Blake J. Wordal

William J. Verwolf
City Manager

GUARDIAN OF THE GULCH

City of Helena

City-County
Administration Building
316 North Park
Helena, MT 59623

Phone: 406/442-9920

February 19, 1991

Solid & hazardous Waste Bureau
836 Front Street
Helena, Montana 59620

Dear Mr. Smith:

Since our last fire at the City of Helena Landfill, three more have occurred. The first one on February 4, 1991 using approximately 500 gallons of water to extinguish the fire. Another fire on February 11, 1991 required between 100 and 150 gallons of water to extinguish. The last fire on February 18, 1991 was very minor using less than 10 gallons of water. All fires originated inside collection trucks. No fires involved refuse other than that inside the vehicle, and all fires were extinguished by City of Helena Fire Department personnel. They used a very fine spray on each fire to minimize penetration into cover soils.

If you have any questions please feel free to contact me at 447-8459.

Sincerely,

William Miller
Supervisor

William R Miller

WM/lm/LNDFLFR/ws

RECEIVED
FEB 21 1991
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID & HAZARDOUS WASTE BUREAU

HYDROMETRICS
2727 Airport Road
Helena, Montana 59601
(406) 443-4150

December 3, 1982

Mr. Charles Micklewright
General Director
YMCA
1200 No. Main
Helena, Montana 59601

Dear Mr. Micklewright:

This letter-report is in response to your recent request for information on potential environmental problems associated with YMCA use of City of Helena property. This property, located just west of the YMCA building, was previously a sanitary landfill for the community of Helena and, as you know, landfills can cause groundwater pollution problems and generate explosive gases.

This letter report discusses the mechanism of decomposition of landfill materials, provides a description of potential liability exposures and gives some information that will help you in determining appropriate insurance coverage and the sharing of liability with the City of Helena. As you are aware, the recent report by Hydrometrics (1982) provided detailed description of the landfill and describes monitoring plans for this facility. Information in this letter was prepared by myself and by the staff of the Montana Solid Waste Management Bureau.

December 3, 1982

Mr. Charles Wickersham
General Director
YMCA
1520 4th. Ave.
Helena, Montana 59601

Dear Mr. Wickersham:

This letter-report is in response to your recent request for information on potential environmental problems associated with YMCA use of City of Helena property. This property, located just east of the YMCA building, has previously a military history for the community of Helena and, as you know, modifies can cause groundwater pollution problems and generally explosive gases.

This letter report discusses the mechanism of accumulation of hazardous materials, provides a description of potential liability exposures and gives some information that will help you in determining appropriate insurance coverage and the sharing of liability with the City of Helena. As you are aware, the recent report by Natural Resources (1982) provides detailed description of site history and describes monitoring plans for this facility. Information in this letter was requested by request and by the staff of the Montana Solid Waste Management Bureau.

Landfill Decomposition

Solid wastes deposited in a landfill decompose by a combination of biological, chemical and physical processes that produce solid, liquid and gaseous products. Factors which affect the degradation of solid wastes in a landfill are: the heterogeneous character of the wastes, the availability of oxygen and moisture, temperature and microbial population. Solid wastes initially decompose aerobically, but as the oxygen supply is exhausted, anaerobic microorganisms predominate and produce methane gas.

Precipitation, surface water or groundwater infiltrating through solid waste can produce leachate. Leachate is a solution containing dissolved and finely suspended solid and microbiological waste products. The amount of leachate produced depends upon the distribution of precipitation, permeability of cover material, evaporation from cover, and freezing and thawing. Leachate can move either as unsaturated or saturated flow. The type of flow depends upon the composition and permeability of the materials underlying the landfill and the configuration of the water table. Movement of leachate is faster through soils with high permeability, such as gravels and sands, and slower through low permeability soils, such as silt and clays. A diagram showing the movement of leachate from a landfill into groundwater is in Figure 1.

Leachate percolating through soils underlying and surrounding solid waste is subject to purification or attenuation. Some contaminants in leachate are attenuated by processes of filtration, adsorption, ion

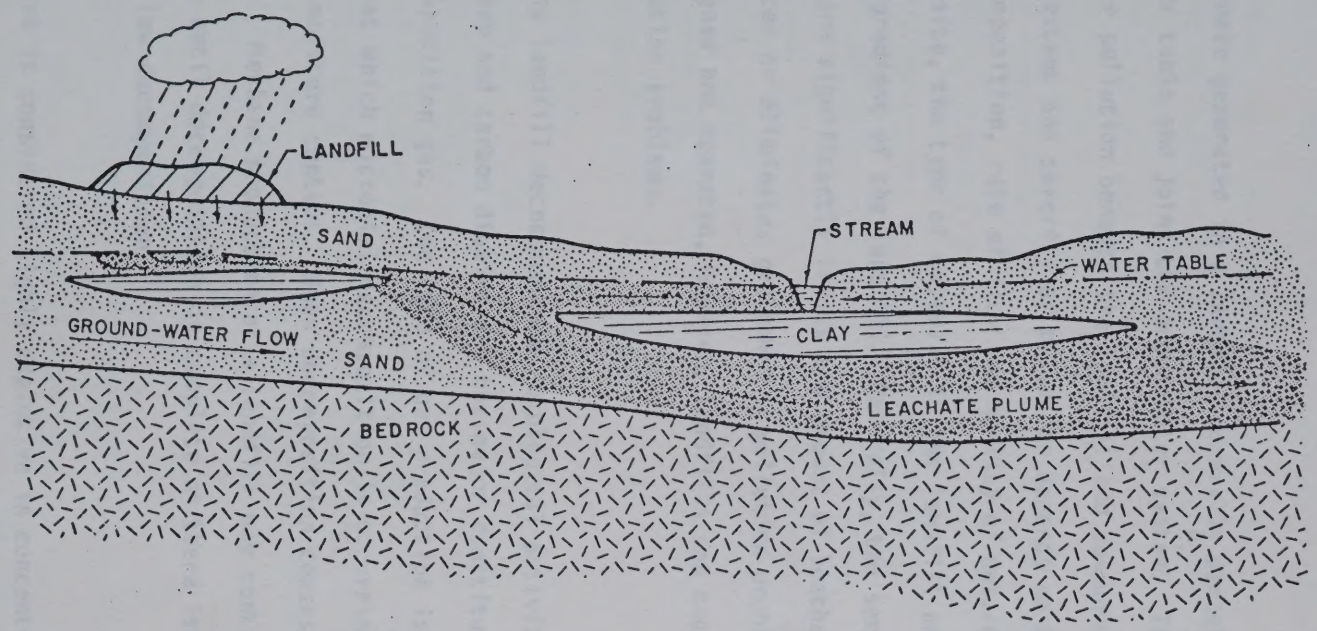

Figure 1. Diagram showing the movement of leachate from a landfill into ground water (from EPA, 1977).

exchange and biodegradation. Usually, attenuation is greater in fine-grained materials.

Leachate generated in a landfill generally percolates downward to the water table and joins the groundwater system. This can cause groundwater pollution beneath the landfill and downgradient of the landfill. The extent and severity of pollution depends on the rate of landfill decomposition, rate of flow and quality of natural groundwater beneath the site, the type of material in the landfill and soils beneath and downgradient of the landfill. Generally, the semi-arid climate of Montana significantly limits the amount of leachate from landfills and reduces or eliminates groundwater pollution problems. If not properly designed and operated, however, landfills can cause severe groundwater pollution problems.

During landfill decomposition, biological activity produces gas. Methane and carbon dioxide are the major constituents of landfill decomposition gas. The rate of gas production is controlled by the rate at which microbial decomposition is occurring, which is dependent upon moisture content. When decomposition ceases, gas production also stops. Methane production at a landfill may continue for a number of years until decomposition is complete or there is insufficient moisture to allow decomposition.

Methane is considered highly explosive in concentrations between 5 to 15 percent by volume in air (Brunner and Keller, 1972). The potential for methane explosions must be considered when solid wastes are

centuries and thousands. Usually, mitigation is greater in site-specific conditions.

Leachate generated in a landfill generally percolates downward in the water table and joins the groundwater system. This can cause ground water pollution depending the logistic and characteristics of the landfill. The extent and severity of groundwater pollution depends on the rate of landfill decomposition, rate of flow and quality of natural groundwater contacts the site, the type of material in the landfill and soil behaviour and characteristics of the landfill. Generally, the sand-and-clayey of coastal alluvially filled areas are at least from landfills are vulnerable to discharge groundwater pollution problems. If not properly designed and operated, however, landfills can cause serious groundwater pollution problems.

During landfill decomposition, biological activity produces gas. Methane and carbon dioxide are the major constituents of landfill decomposition gas. The rate of gas production is controlled by the rate at which microbial decomposition is occurring, which is considerably lower during winter. When decomposition ceases, gas production also stops. Methane production at a landfill may continue for a number of years until decomposition is complete or there is insufficient moisture to allow decomposition.

Methane is considered highly explosive in concentrations between 5 to 15 percent by volume in air (Pomeroy and Tatter, 1973). The potential for methane explosions must be considered when siting landfill sites.

deposited in a landfill. Migration of gas beyond the landfill into surrounding soils and/or overlying structures occurs by two basic processes: convection, which is movement in response to pressure gradients; and diffusion, which is movement from areas of higher gas concentration to regions of lower concentration (Vail and Associates, 1979).

The gas permeability of soils influences the movement of gas. Gas movement is greater in soils with high permeability, such as sands and gravels, and lower in soils with low permeability, such as clays and silts. Dry soils will not significantly impair the flow of gas, but saturated soil such as clay can form an excellent barrier. If the cover on a landfill acts as a barrier, gases will migrate laterally until they can vent to the atmosphere. Methane is insoluble in water; therefore, the water table beneath a landfill will inhibit the depth of gas migration.

Liability Exposure

The use of City of Helena property by the YMCA must be considered in view of potential benefits and liabilities associated with the property. One obvious liability is the potential for the landfill to generate leachate and gases.

The question of liability exposure associated with the YMCA use of this property must consider the following:

deposited in a landfill. Migration of gas beyond the landfill into surrounding soils and/or overlying structures occurs by two basic processes: convection, which is important in response to pressure gradients, and diffusion, which is dominant in response to gradients in concentration in regions of lower concentration (Vail and Associates, 1979).

The gas permeability of soils influences the movement of gas. Gas movement is greater in soils with high permeability, such as sands and gravels, and lower in soils with low permeability, such as clays and silts. Dry soils will not significantly impede the flow of gas, but saturated soil such as clay can form an impeding barrier. If the cover on a landfill acts as a barrier, gases will migrate laterally until they can vent to the atmosphere. Because of fluctuations in water characteristics, the water table beneath a landfill will limit the depth of gas migration.

Liability Exposure

The use of City of Helena property by the TMCA must be considered in view of property ownership and liability associated with the property. One obvious liability is the potential for the landfill to generate leachate and gases.

The question of liability exposure associated with the TMCA use of City property must consider the following:

1) Long-term problems related to pollution of wells downgradient from the landfill site.

2) Pollution of groundwater beneath and downgradient of the landfill site.

3) Generation of methane gas and potential explosive hazards.

4) Pollution of surface water derived from groundwater flowing from the landfill site.

Of considerable concern would be the pollution of wells downgradient of the landfill site. Approximately 3,000 feet north and downgradient of the landfill site, are several private wells used for household purposes. Several hundred feet north of these wells there are two existing wells used for public water supplies and an additional well that may in the future be used as a public water supply. The City of Helena has three wells located north of the landfill that are used to supply water to the municipal golf course. North of Custer Avenue (about one mile north of the landfill) there are a number of wells. Pollution of these wells due to the landfill would be a serious problem, particularly in the case of the public water supply wells. Pollution of the irrigation wells supplying the municipal golf course would be of lesser significance.

Pollution of groundwater beneath and downgradient of the landfill also would be of importance. Recently, the Montana Department of Health and Environmental Sciences has developed a groundwater pollution control program that gives the state authority over pollution of groundwater and provides penalties for those causing groundwater pollution. If

2) Leachate problems related to pollution of wells downgradient from the landfill site.

3) Pollution of groundwater beneath and downgradient of the landfill site.

4) Generation of methane gas and potential explosive hazards.

5) Pollution of surface water derived from groundwater discharge from the landfill site.

If groundwater impacts would be the pollution of wells downgradient of the landfill site. Approximately 7,000 feet north and downgradient of the landfill site, are several private wells used for domestic purposes. Several hundred feet north of these wells there are two existing wells used for public water supplies and an abandoned well that may in the future be used as a public water supply. The City of Helena has three wells located north of the landfill that are used for supply water to the municipal pipeline. North of Euclid Avenue (about one mile north of the landfill) there are a number of wells. Pollution of these wells due to the landfill would be a serious problem, particularly in the area of the public water supply wells. Pollution of the irrigation wells supplying the municipal golf course would be of lesser significance.

Pollution of groundwater beneath and downgradient of the landfill site is of importance. Recently, the Montana Department of Health and Environmental Sciences discovered a groundwater pollution control program that gives the state authority over pollution of groundwater and provides penalties for those causing groundwater pollution. It

groundwater became polluted downgradient of the landfill, the state would have the authority to require the groundwater pollution be stopped and the polluted area rehabilitated.

Correction of a groundwater pollution problem often is technically difficult, time consuming and very expensive. Problems that must be considered in correcting pollution problems are disposal of polluted water and implementation of long-term corrective, abatement or mitigation measures. In the case of a significant groundwater pollution problem associated with the landfill, the financial liability involved in clean-up could be substantial.

Generation of methane gas is a common feature of sanitary landfills and is occurring in the existing landfill. The National Guard Armory and the YMCA building are the nearest to the landfill and are of primary concern. Buildings owned by the City of Helena on the site also are of concern. The problem is the potential seepage of gas into these buildings and subsequent build-up of an explosive mixture of methane.

The only surface water associated with the landfill site is a stream that emminates from Last Chance Gulch and runs beneath the landfill site. This stream ultimately discharges into the dredged area north of the Burlington Northern railroad tracks. However, there is another small stream of water that surfaces north of the municipal golf course along McHugh Drive. If groundwater were to become contaminated beneath and downgradient of the landfill, it is possible that both of these streams ultimately could be impacted by the polluted groundwater.

A discussion of potential liabilities associated with the landfill also must consider the probability for such pollution to occur. It must be understood that the landfill site is both geologically and hydrologically complex. The landfill is underlain by bedrock and unconsolidated alluvium; may be bounded by fault zones and intrusive rocks, and may be bounded on the north by a fault. The northern section of the landfill extension probably is underlain by a thick sequence of Tertiary semi-consolidated sedimentary strata. Hydrologically, the site also is complex. A storm drain and a sewer are present beneath the landfill and there is a groundwater table beneath the entire area. The landfill site also is downgradient from Last Chance Gulch, which is influenced by activities in the downtown business area.

Hydrogeological work conducted to date at the landfill site has been limited in its scope, and geological and hydrological characteristics of the landfill site are not well understood. There are factors that suggest groundwater pollution could be a problem at the landfill. There also are factors that suggest that groundwater pollution will not occur or will not be a significant problem. Factors that suggest pollution problems may occur or have occurred include:

1) There was a substantial odor noted at the landfill site during the recent grading of the site. An excavation in November 1982 to install a manhole released a strong odor caused by decomposition of landfilled material.

A discussion of potential liability associated with the landfill also must consider the probability for such pollution to occur. It must be understood that the landfill site is both geologically and hydrologically complex. The landfill is underlain by fractured and unconsolidated alluvium, may be bounded by fault zones and impervious rocks, and may be bounded on the north by a fault. The southeastern section of the landfill extension probably is comprised of a thick sequence of Tertiary semi-consolidated continental strata. Geologically, the site also is complicated. A stone crate and a water are present outside the landfill and there is a groundwater table beneath the entire area. The landfill site also is downgradient from Lost Canyon Gulch, which is hydrologically active in the shallow locations area.

Hydrogeological work conducted to date at the landfill site has been limited to the study and geological and hydrological characteristics of the landfill site are not well understood. There are factors that suggest groundwater pollution could be a problem at the landfill. There also are factors that suggest that groundwater pollution will be minor or will not be a significant problem. Factors that suggest pollution problems may occur or have occurred include:

1) There was a substantial odor noted at the landfill site during the recent grading of the site. An observation in November 1982 to install a sample relocated a strong odor caused by decomposition or landfilled material.

2) There has been, in the past, essentially no effort to control infiltration of water into the landfill. The site has been used by the city of Helena for disposal of snow, which melted and resulted in ponded water and subsequent infiltration.

3) The landfill is known to generate methane gas, indicating decompositon.

4) Data from recent sampling of monitoring wells suggests that there may be some degredation of groundwater quality beneath the landfill.

There also are a number of factors that suggest the landfill will not cause a pollution problem or the pollution problem will be minimal. These are:

1) Data from present test monitoring wells in the landfill show groundwater is consistantly below the bottom of the backfilled landfill trenches. This will prevent the deeply buried decomposable material from being periodically wetted by groundwater.

2) Recent excavation for a manhole revealed the landfill materials are relatively dry and there appeared to be no excessive moisture in the landfill. An odor was present, but this odor also has been noted in fresh garbage and it cannot be assumed the odor is indicative of groundwater pollution.

3) Recent monitoring well drilling in the new extension of the landfill site has shown that there is little groundwater flow in unconsolidatted materials north of the existing landfill.

2) There has been, in the past, essentially no effort to control infiltration or water into the landfill. The site has been used by the city as reason for alternate of view, which method and research in general water and subsurface information.

3) The landfill is known to generate methane gas, indicating decomposition.

4) Data from recent sampling of monitoring wells suggests that there may be some degradation of groundwater quality beneath the landfill.

There also are a number of factors that suggest the landfill will not cause a pollution problem or the pollution problem will be minimal. These are:

1) Data from present use of monitoring wells in the landfill show groundwater quality significantly below the bottom of the landfill. Thus, it appears that the deeply buried decomposing material from being environmentally washed by groundwater.

2) Upon excavation for a nearby temporal the landfill materials are relatively dry and there appeared to be no excessive moisture in the landfill. In other words, the site also has been used in fairly arrange and it cannot be assumed the site is indicative of groundwater pollution.

3) Future monitoring well drilling in the new excavation of the landfill site may indicate that there is little groundwater flow in unconsolidated materials north of the existing landfill.

4) There is a substantial distance between the existing landfill and present water supply wells in the area and the water supply wells generally are considerably deeper than the bottom of the landfill.

5) Soil survey by the Soil Conservation Service showed a reasonably thick soil cover over the landfill. This cover can intercept and hold considerable moisture.

Based on the geological and hydrological complexities of the landfill area and limited knowledge of resources in this area, it cannot be concluded with certainty what future impacts may result from the landfill. Additional hydrological and geological data are needed to clarify conditions in the area and to provide a better basis for evaluation of potential long-term effects. This landfill was used for a number of years, however, and no significant groundwater quality problems are known to have been generated by the landfill. From monitoring wells in the existing groundwater system there is no evidence that severe pollution is occurring from the landfill.

Another factor that must be considered is assessment of potential pollution from the landfill is the water utilization plan developed for the YMCA facilities. There has been considerable effort by YMCA staff to develop a water use plan that will prevent downward percolation of water and yet maintain the required grassed playing areas. Much of the future potential for pollution at this site is directly dependent upon the design, installation and operation of the water system. Water management of the landfill under the direction of the YMCA may be less

4) There is a substantial distance between the existing landfill and present water supply wells in the area and the water supply wells generally are cosmetically superior than the bottom of the landfill.

5) Soil survey by the Soil Conservation Service shows a relatively thick soil cover over the landfill. This cover has interceptor and swale characteristics.

Based on the geological and hydrological conditions of the landfill area and limited knowledge of resources in this area, it cannot be conclusive also concerning what future impacts may result from the landfill. Basic and hydrological and geological data are needed to clarify questions in the area and to provide a better basis for evaluation of potential impacts after it. This landfill was used for a number of years, however, and no significant groundwater quality problems are known to have been generated by the landfill. From monitoring wells in the existing groundwater system there is no evidence that ammonia pollution is emanating from the landfill.

Analysis factors that must be considered in assessment of potential pollution from the landfill in the water quality management plan developed for the TRCA facilities. There has been considerable effort by TRCA staff to develop a method and plan that will prevent downstream pollution of water and yet maintain the required growth planning areas. Much of the future potential for pollution or this site is directly dependent upon the design, installation and operation of the water system. Water management at the landfill under the direction of the TRCA may be less

likely to create pollution problems than the previous use of the landfill site.

A water monitoring system will be required for the landfill and the a program must include stringent control of water applications and periodic measurements of soil moisture. Monitoring also must include wells peripheral to the landfill. It should be recognized that monitoring wells show what has happened in the landfill. When monitoring wells show pollution, then corrective actions must be taken. Monitoring wells are important but proper water management is by far the most important factor in use of this site. Poor water management practices could create a serious groundwater pollution problem. An essentially fail-safe water program must be developed and implemented for this site.

LIABILITY RESPONSIBILITY

Since the landfill site has been operated by the City of Helena for many years, it would seem reasonable the initial responsibility for pollution problems peripheral to this landfill should be the responsibility of the City. The YMCA, however, will need to begin accepting responsibility for this site as its program develops. Water pollution problems occur very slowly and commonly take a number of years before detection by monitoring systems. The City of Helena probably should maintain a share of the liability for this site for some years in the future. There is no rational means whereby the division of responsibility can be made and there is no technical basis for calculating a division of liability.

likely to create pollution problems than the previous use of the Landfill site.

A water monitoring system will be employed for the Landfill and the a program must include surrogate control of water quality and periodic measurements of leachate. Monitoring also must include wells peripheral to the Landfill. It should be recognized that monitoring wells among what has happened in the Landfill. When monitoring wells show pollution, then corrective actions must be taken. Monitoring data are important for proper water management in by far the most important factor in use of this site. Poor water management practices could create a serious groundwater pollution problem. So essentially full-scale water program must be developed and implemented for this site.

LIABILITY RESPONSIBILITY

Since the Landfill site has been operated by the City of Helena for many years, it will also be essentially the initial focus liability for pollution problems arising from this Landfill result to the economic ability of the City. The City, however, will need to begin accepting responsibility for this site as its program develops. Future pollution problems occur very slowly and especially take a number of years before detection by monitoring systems. The City of Helena probably should maintain a share of the liability for this site for some years in the future. There is no rational means whereby the elevation of responsibility can be made because is no technical basis for calculating a division of liability.

In view of the lack of criteria for establishing liabilities, the following is a possible division of responsibility and liability between the City and the YMCA. This division has no scientific basis, but hopefully is a reasonable compromise between the years of use of the site by the City and the ultimate long-term operation of this site by the YMCA.

Year	City of Helena	YMCA
1	90	10
2	85	15
3	80	20
4	75	25
5	70	30
6	60	40
7	50	50
8	40	60

After the eighth year, the division of liabilities may need to be reassessed, insurance coverage re-examined and the division of responsibility and liability changed.

It has been a pleasure to help you with this important YMCA project. If you have any questions on this letter report, please do not hesitate to contact me.

Sincerely,

M. K. Botz, P.E.
Hydrologist/Engineer

MKB:jy

In view of the lack of criteria for evaluating facilities, the following is a possible division of responsibility and liability between the City and the YMCA. This division has no exact (its basis), but logically it is a reasonable compromise between the views of one of the sides by the City and the acceptance long-term operation of this site by the YMCA.

Year	City of Nelson	YMCA
1	90	10
2	80	20
3	60	30
4	40	60
5	30	70
6	20	80
7	10	90
8	0	100

After the eighth year, the division of liability and care is to be reassessed, including average overhauling and the division of long-term liability and liability changed.

If you have difficulties to help you with this important YMCA project. If you have any questions on this issue report, please do not hesitate to contact me.

Sincerely,

M. E. Moss, P.E.
Mechanical Engineer

Attach.

REFERENCES

Brunner, D. R. and Keller, D. J., 1972, Sanitary Landfill Design and Operation; U. S. Environmental Protection Agency Report SW-65ts, 57p.

Hydrometrics, 1982, Groundwater Monitoring Program, City of Helena Sanitary Landfill, Helena, Montana. Private Report to City of Helena, 15p.

U. S. Environmental Protection Agency, 1977, Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities: Report No. SW-616, 269p.

Vail, R. and Associates, 1979, Investigation of Methane Gas Problems at High Priority Waste Disposal Sites: State of Colorado, Contract No. C-294525, 45p.

AGREEMENT TO LEASE AND DEVELOP LAND

This lease, made on _____, 1983, between the City of Helena, a municipal corporation in the State of Montana, hereinafter called the City, and the Helena Young Men's Christian Association, a Montana nonprofit corporation, hereinafter called the YMCA.

SECTION ONE
DESCRIPTION, TERM OF LEASE

In consideration of the rents reserved and of the covenants and provisions expressed hereafter, the City agrees to lease to the YMCA, property located at the City Landfill site in Helena, Montana, described as follows:

together with the full power, with approval of the City and the State Department of Health and Environmental Sciences, to lay out, plant, improve, and maintain the property for the purpose of providing outdoor recreational activities to the YMCA's members and the public, as more specifically provided in Section 4. The property is to be held by the YMCA, subject to any rights of way or other easements affecting the property, from _____, 1983, until _____ _____, 200__, a term of 25 years, for use as an outdoor recreation facility and for no other purpose.

SECTION TWO
PAYMENT OF RENT; OTHER USES PROHIBITED

The YMCA agrees to pay the City a nominal rent of One Dollar ($1.00) per year so long as the lands are used for the purposes stated above. If the property is used for any purposes not contemplated in this agreement, the City may terminate this lease and follow the procedures set forth in Section ___.

SECTION THREE
UNDERTAKINGS OF THE CITY

The City has graded the land in that part of the facility designated on the appended map as multi-purpose fields, and has placed topsoil thereon. In consideration of the promises exchanged herein, the City agrees to purchase, or to provide funds up to $13,000 for the purchase of grass seed of a variety, quality, and quantity consistent with standards of state and federal environmental agencies and suitable for park use.

SECTION FOUR
UNDERTAKINGS BY THE YMCA

The YMCA agrees to maintain the entire facility as described in Section One. Maintenance shall include, but not be limited to, watering, mowing, weeding, fertilizing, top dressing with sand, disease and insect pest control, overseeding, aerating, replacement of horticultural practice necessary to insure normal vigorous and healthy growth of grass. The YMCA will provide all labor, equipment, and materials necessary for the planning, surveying, staking and actual improvements as reviewed and agreed upon by the City. The YMCA shall provide proof of adequate available water (well or purchase by the City) prior to development of the site. The YMCA will provide a water monitoring system including stringent control of water applications, periodic measurements of soil moisture and monitoring of peripheral wells to the site as recommended in the Hydrometrics report dated December 3, 1982. Installation and analysis of the test wells shall be the responsibility of the YMCA. Reports on this monitoring shall be submitted to the City of Helena and the State Health and Environmental Sciences, Bureau of Solid Waste, every six months for the first five years of operation of the facility. If no negative impacts are identified in this five year period, reports shall be submitted on a yearly basis thereafter. The monitoring plans and techniques and the watering plans of the YMCA shall be approved by the City of Helena and the Montana State Department of Health and Environmental Sciences, Bureau of Solid Waste (MDHES), prior to development of the site. and must be followed without deviation, except for changes requested by either the YMCA or the City of Helena to which both parties, plus the MDHES, agree in writing. In the event that, after the monitoring and/or watering plans have been put into practice, they are determined by the MDHES to be inadequate to protect public health or prevent groundwater pollution, the YMCA will comply with changes in either plan which both MDHES and the City of Helena approve in writing.

SECTION FIVE
NAME

The facility may be known by such name as the YMCA may elect to assign to it.

SECTION SIX
SCOPE OF ACTIVITIES

All activities such as, but not limited to, soccer, softball, volleyball, etc. held on land formerly known as the Helena Landfill located adjacent to the existing Helena YMCA building (see attached description) shall be the responsibility of the Helena YMCA. All activities are to be scheduled by the Helena YMCA with Helena YMCA activities holding priority. Use of these facilities by others are to be permitted as Helena YMCA schedules allow.

SECTION SEVEN
PARKING — HORSESHOE COURTS

The Helena YMCA will provide parking and restroom facilities during normal Helena YMCA operating hours for horseshoe players on the existing City owned Horseshoe Courts and adjacent to the Helena YMCA. Adequate parking for the new facility shall be provided and constructed according to City Ordinance. If National Guard property is to be utilized for parking, a letter of agreement allowing this use shall be approved by the City Attorney prior to development of the project.

SECTION EIGHT
FEES

The YMCA may charge a fee for the use of said recreational area, which fee would not exceed the cost of the services provided to the members of the community.

SECTION NINE
ACCESS

Traffic access to the Helena YMCA building and landfill recreational facilities shall be planned in accordance with the recommendations in the North Main Environmental Impact Statement. Maintenance shall be the responsibility of the YMCA. The YMCA shall obtain from the National Guard an appropriate legal tool guaranteeing a secondary access off of Lyndale. This access shall meet the approval of the City Attorney before development of the site.

SECTION TEN
EFFECT OF TERMINATION

In the event of termination of this agreement, the YMCA shall remove its personal property from the facility. On the termination of this agreement for any reason, all improvements on facility property affixed to the land will be turned over to the City and become the property of the City.

SECTION ELEVEN
ASSIGNMENT

The YMCA shall not assign this agreement, either in whole or in part, without the prior written approval of the City. The City shall not assign this agreement to a private corporation, firm or individual without the prior approval of the YMCA, except as herein provided.

SECTION TWELVE
MODIFICATIONS

This agreement can only be modified by written instrument bearing the signatures of those persons authorized to represent the governing bodies of the City and the YMCA.

SECTION THIRTEEN
NONDISCRIMINATION

The YMCA shall not discriminate against any employee or applicant for employment, because of race, color, creed, sex, age, or national origin. The YMCA and its employees shall not discriminate because of race, religion, color, ancestry, sex, or national origin against any person by refusing to furnish such person any service or privilege offered to or enjoyed by the general public, nor shall the YMCA or its employees publicize the facilities provided hereunder in any manner that would directly or indirectly reflect on the acceptability of the patronage of any person because of race, religion, color, ancestry, sex, or national origin.

SECTION FOURTEEN
REVERTER

If the YMCA fails to construct the above-referenced recreational facility within two years or fails to comply with any other provisions of this agreement then, in that event, all of the right and interest of the YMCA in the above-described property shall cease and terminate and automatically revert to the City of Helena.

SECTION FIFTEEN
INDEMNITY

The YMCA agrees to indemnify and hold harmless the City, its agents, employees and officer, from and against all claims, damages, losses, expenses and costs of any kind, in any way arising out of any changes in the nature or character of the property by the YMCA.

SECTION SIXTEEN
RENEWAL

The YMCA shall have the right to renegotiate this lease for an additional term of 25 years by giving the City written notice of its intention to renew any time prior to the expiration of this term.

In witness whereof, the parties have executed this agreement _____ _____ on the day and year first above written.

_____
City of Helena

_____
Young Men's Christian Association
(YMCA)

ATTEST:

File Lewis & Clark County Helena City Landfill

City of Helena Landfill Meeting 2/5/91
at Dept. of Health & Environmental Sciences,
Solid & Hazardous Waste Bureau.
Solid Waste Program

NAME	EMPLOYER	PH. #
Ralph N. Smith	DHES-SHWB	444-1430
Tony Grover	" "	" "
Will Seber	L&C County Health	447-8354
Roger Thorvilson	DHES - SHWB	444-1430
Kate McIvor	L&C City/County Health	447-8362
Duane Robertson	DHES-SHWB	444-1430
R[illegible]	City of Helena	447-8455
RANDY HUFFSMITH	Hydrometrics	443-4150
M.K. BOTZ	"	"
Bill Verwolf	City of Helena	447-8000
Richard Nisbet	" " "	447-8426
Jim Wilber	DHES - SHWB	444-1430

RECEIVED
FEB 6 1991
Montana Department of Health
and Environmental Sciences
Solid and Hazardous Waste Bureau

MEMORANDUM

January 24, 1991

TO: Dick Nesbit, Ted Hill, Ralph Smith, Will Selser, Bill Verwolf

FROM: Randy Huffsmith

RE: Helena Landfill Water Quality Monitoring Program

On November 27, 1990, Hydrometrics, Inc. submitted a report to the City of Helena entitled "Hydrogeologic Investigation of the City of Helena Landfill". This report included a proposed groundwater monitoring plan. On December 18, 1990, Hydrometrics, Inc., in conjunction with City of Helena officials, met with the Montana Department of Health and Environmental Sciences, Solid Waste Bureau (MDHES, SWB) and discussed the proposed plan. Several revisions to the monitoring plan were suggested by the Solid Waste B ureau. These revisions included obtaining samples from a smaller network of wells but analyzing those samples for more parameters. No revisions were suggested to the methane monitoring program.

I have enclosed a finalized monitoring plan which is based on input from the SWB and Will Selser of the County Health Department. We can discuss this plan at our meeting scheduled for February 5 at 1:30 pm at the SWB.

kar

Enclosure

HELENA LANDFILL

WATER QUALITY ANALYTICAL SCHEDULE

Well Number	Analysis	Date
83-6	Phase I Parameters	Spring, Fall
HL90-1	Phase I Parameters	Spring, Fall
HL90-2	Phase I Parameters	Spring, Fall
HL90-3	Phase I Parameters	Spring, Fall
40	Phase I Parameters	Spring, Fall
43	Phase I VOC's	Spring, Fall
47	Phase I VOC's	Spring, Fall
13	Phase I VOC's	Spring, Fall
75	Phase I VOC's	Spring, Fall
EPAI	Phase I VOC's	Spring, Fall

$433/sample

59

Early Spring this year.

MONTANA
PRESS CLIPPING SERVICE

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Montana Newspaper Association
534 N. Main, Suite 202
Helena, MT 59601

Independent Record
Helena, Montana
FEB - 3 1991

City of Helena
L&C Co.

'Unglamorous' recycling idea could save space

By LISA MEISTER
IR Staff Writer

Collecting cardboard, large used appliances and grass clippings would keep about 25 percent of the city's waste out of the landfill, an environmental engineer has told city officials.

'At the moment, we're not looking at it as big money.'

"It's not the glamorous type of recycling," Ted Hill said, "but it's effective."

Hill gave a presentation at Thursday's city work session and discussed his plans in an interview Friday.

He said his proposals would not cost much more than sanitation pick-up does now, and that they could begin any time.

In addition to his other proposals, Hill said, the city also could begin a curbside collection of aluminum cans and newsprint.

He said people could call the sanitation department to have materials collected, or one week a month could be set aside for pick up.

"Curbside recycling is very glamorous," he said. "It's what everyone wants to talk about."

However, he said, "cans, bottles and newspapers don't take up as much room (in the landfill), and those are things that don't contaminate the groundwater."

Among his other proposals, Hill suggested that large bins for cardboard could be placed next to regular garbage bins at the Capital Hill Mall, the Lundy Shopping Center and grocery stores. Then city sanitation workers could pick up the cardboard and haul it to a recycling center, he said.

Though cardboard is biodegradable and is not an environmental hazard, Hill said, it takes up a lot of space.

Refrigerant from used appliances has been known to contaminate groundwater, however.

To avoid that and to help clear some room in the landfill, Hill has proposed that such large appliances as refrigerators, washers and dryers could be amassed at the junk vehicle yard northwest of Helena.

Every so often, he said, the city could call in a bailer from Montana Recycling or Pacific Steel-Hides-Furs-Recycling to crush the appliances, which then could be sold as scrap metal.

He added that there also is a potential market for grass and leaves as compost for local nurseries.

Bags of lawn clippings could be set aside at the landfill and delivered to greenhouses and the like, he said.

Hill said any money collected in recycling projects initially would go into a city sanitation account.

"At the moment, we're not looking at it as big money," he added. "We're just making an opportunity. Let's get it going."

Hill plans to bring estimated costs for his plans to the City Commission Feb. 11.

File: Lewis & Clark Co
City of Helena landfill

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

Solid and Hazardous Waste Bureau

STAN STEPHENS, GOVERNOR

FAX #(406) 444-1499

STATE OF MONTANA

OFFICE LOCATION: 836 Front Street, Helena, Montana

MAILING ADDRESS: Cogswell Building, Helena, MT 59620

Waste Management Section
(406) 444-1430

January 14, 1991

Richard Garrett
Capital Laundry & Textile Service
720 Helena Ave.
Helena, MT 59601

Dear Mr. Garrett:

Enclosed is a copy of the report covering my inspection on January 3, 1991. If you notice any discrepancies, please contact me.

I noted no violations of RCRA regulations during my inspection. As a conditionally exempt small quantity generator, one of your disposal options is to dispose of your hazardous wastes in a licensed Class II landfill. This may only be done with the permission of the landfill operator. You indicated that you have not received formal permission from the Helena Landfill operator. I urge you to obtain this permission prior to any further hazardous waste disposal using this option.

As a conditionally exempt generator, you are not required to mark your hazardous waste storage containers with either the words HAZARDOUS WASTE or words describing the contents. As we discussed, I do urge you, for safety reasons, to identify the contents of your hazardous waste storage drums.

I would like to thank you for your time and effort during my inspection. If I may be of any assistance in the future, please feel free to contact me.

Sincerely,

Robert Reinke
Hazardous Waste Bureau

enclosure

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Environmental Sciences Division
Solid and Hazardous Waste Bureau

FIELD INVESTIGATION REPORT

SITE: Capital Laundry and Textile Service

EPA ID#: MTD982588147

LOCATION: 720 Helena Ave., Helena

DATE & TIME: January 3, 1991 9:45 A.M.

CONTACT: Richard Garrett

INSPECTION TEAM: Robert Reinke

PURPOSE: Evaluation

REPORT PREPARED BY: Robert Reinke R.D.R.

BACKGROUND: Capital Laundry and Textile Service (CLTS) notified this office as a conditionally exempt small quantity hazardous waste generator on 12/4/90. CLTS utilizes both dry cleaning equipment and commercial washing machines to clean clothing.

RESULTS OF INSPECTION: Dick Garrett, owner, explained current hazardous waste management operations as I inspected the premises.

Two Frimair refrigerated dry cleaning machines are used on-site. These greatly reduce the amount of perchloroethylene(PERC) released to the atmosphere. Each machine contains a distillation unit which generates PERC laden sludge. The stills are cleaned approximately every two weeks. Approximately one 55 gallon drum of sludge is produced on-site per year. This sludge is placed in a split ring drum kept near the machines. At the time of inspection one closed drum approximately 2/3 full was stored near the machines. This drum bore no labels or accumulation start date. Once filled, the sealed drums are stored on a loading dock in the garage. Three drums were in storage. These bore no labels or accumulation start dates. Mr. Garrett has contracted with Van Waters and Rogers to transport the still bottom sludges to a Spokane recycling facility.

Each dry cleaning machine used six filter cartridges which are changed approximately every one and a half months. Prior to removal, the filters are cooked dry in the normal operation of the machine. Each of these filters weighs approximately 15 pounds. The filters are then disposed of in the dumpster which goes to the Helena City Landfill.

Mr. Garrett advised me that he also owns Helena Cleaners. No dry cleaning is done at that site any longer. All dry cleaning is

brought to the CLTS site for processing.

RECOMMENDATIONS: 1) Obtain formal permission from the Helena Landfill operator to dispose of the dried filters at the landfill. 2) As a safety measure, label all drums containing hazardous waste as to contents.

Commissioners
Russell J. Ritter, Mayor
Rayleen Beaton
Tom Huddleston
Rose Leavitt
Blake J. Wordal

William J. Verwolf
City Manager

GUARDIAN OF THE GULCH

City of Helena

City-County
Administration Building
316 North Park
Helena, MT 59623

Phone: 406/442-9920

January 10, 1991

Ralph Smith
Solid and Hazardous Waste Bureau
836 Front Street
Helena, MT. 59620

Dear Mr. Smith,

As you noticed in the Helena Independent Record the City Fire Department was called to our Sanitary Landfill on January 7, 1991.

The fire actually occurred in one of the collection trucks. When the driver noticed it he drove immediately to the landfill (our usual procedure). He stopped on the access road, (virgin ground well away from any filled areas), and ejected the load. The Fire Department then put out the fire using an estimated 500 gallons of water. No water was applied to or drained to any active or inactive fill area.

If further information is required, please contact me at 447-8455 at your convenience.

Sincerely,

Robert T. Hill
Environmental Engineer

cc: Richard Nisbet
William Miller

ldm/RTH/FIRE

RECEIVED
JAN 14 1991
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID & HAZARDOUS WASTE BUREAU

File: Lewis & Clark Co.
Helena Landfill

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

Solid and Hazardous Waste Bureau

STAN STEPHENS, GOVERNOR

FAX #(406) 444-1499

STATE OF MONTANA

OFFICE LOCATION: 836 Front Street
Helena, Montana

MAILING ADDRESS: Cogswell Building
Helena, MT 59620

Waste Management Section
(406) 444-1430

October 17, 1990

Bob Settle
Settle Aviation
3080 Airport Road
Helena, MT 59601

Dear Bob:

Enclosed is a copy of the inspection report I prepared after having visited your business on October 16th. If there are any incorrect statements in this report, please let me know.

Because you appear to generate less than 220 pounds per month of hazardous waste, the Department is classifying you as an exempt small quantity hazardous waste generator. This means that you are exempt from the reporting requirements of small and large quantity hazardous waste generators. You are however responsible for storing and disposing of your waste streams in an environmentally-sound manner. Although it is not recommended to mix hazardous waste streams with non-hazardous waste streams (i.e., used stoddard solvent with used oil), your practice of mixing relatively small quantities of stoddard with used oil is acceptable since it is unlikely that you are making the mixture hazardous. If you wish to continue with this practice please keep in mind that relatively large quantities of used stoddard mixed with oil could lower the flash point of the oil/stoddard mixture to below 140° making the mixture either a hazardous waste or a hazardous waste fuel. Disposal of hazardous waste/fuel would be more costly and complex for you.

I recommend that you look into recycling your used oil stoddard mixture as a preferred alternative to taking it to the Helena Landfill oil burner mostly because they are not supposed to be taking anything other than household quantities (no more than 2-3 gallons) of **straight** used oil. In addition, recycling your used oil may prove to be profitable at this point in time given the current price of a barrel of crude oil.

Although I am not thoroughly clear as to how much of the carb cleaner which you accepted from Helena Vo-Tech will be used by your business, waste generated from this solvent will be hazardous and will need to be disposed of properly. Contact me if you have any questions on proper disposal of this waste.

I once again thank-you for your time and the information you provided to me during my inspection.

Sincerely,

Ellen L. Van Duzee

Ellen L. Van Duzee

cc: Tony Grover, MDHES/Solid Waste Program
Richard Nisbet, Helena Public Works

Although I am not thoroughly clear as to how much of the cash claimed which you accepted from Morris Yo-Yogh will be used by your business, waste generated from this equipment will be hazardous and will need to be disposed of properly. Contact me if you have any questions on proper disposal of this waste.

I want again thank you for your time and the information you provided to me during my inspection.

Sincerely,

Brian L. Van Duzee

Cc: Tony Grover, RCRIS/Solid Waste Program
Barbara Blaker, Maine Public Works

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Environmental Sciences Division
Solid and Hazardous Waste Bureau

FIELD INVESTIGATION REPORT

SITE: Settle Aviation

EPA ID#: N/A

LOCATION: 3080 Airport Road

DATE & TIME: October 16, 1990 10:20 - 11:30 AM

CONTACT: Bob Settle

INSPECTION TEAM: Ellen Van Duzee

PURPOSE: Evaluation

REPORT PREPARED BY: Ellen Van Duzee EVD

BACKGROUND: Settle Aviation is a small business located on Helena Regional Airport property which specializes in small aircraft maintenance. They have not notified the Department or EPA of hazardous waste activities and appear to be an exempt generator of hazardous waste.

RESULTS OF INSPECTION: Settle Aviation was inspected after the Department learned that they had received 160 gallons of used Turco-Transpo carburetor cleaner from the Helena Vo-Tech on September 7, 1990. Although the carburetor cleaner was used, it is still considered to be a useful product for cleaning machine parts.

Bob Settle, the owner of Settle Aviation stated that the carb cleaner was taken to Norman Excavating in East Helena for their use in cleaning heavy equipment machine parts. The product is being stored in three drums on site.

At Settle Aviation, stoddard solvent is used for cleaning aircraft parts. Bob estimates that he uses 16 gallons of new stoddard per year. New product is stored in a 16 gallon drum with a dispenser spigot. Approximately 10 gallons of stoddard is kept in a 20 gallon parts washer. Spent stoddard solvent is mixed with waste oil and kept in 5 gallons buckets which for the most part have lids on them. After several buckets of used oil/stoddard have accumulated, Bob hauls the waste oil to the Helena municipal landfill where it is used as fuel for heating their heavy equipment storage area.

RECOMMENDATIONS: No violations of hazardous waste regulations were noted since Settle Aviation is an exempt small quantity generator.

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Environmental Sciences Division
Solid and Hazardous Waste Bureau

TCRCO INVESTIGATION WORK SHEET

SITE: Seattle Aviation

NPA INFO. N/A

LOCATION: 8000 Airport Road

DATE & TIME: October 14, 1988 10:30 - 11:30 AM

CONTACT: Bob Battle

INSPECTOR TEAM: Allan Van Dunes

PURPOSE: Evaluation

REPORT PREPARED BY: Allan Van Dunes

BACKGROUND: Seattle Aviation is a small health-care located on Helena municipal Airport property which specializes in small aircraft maintenance. They have not notified the Department of any of hazardous waste activities and appear to be an exempt generator of hazardous waste.

HISTORY OF OPERATION: Seattle Aviation was inspected after the department learned that they had received 160 gallons of used Turco-Trenpo carburetor cleaner from the Helena Wo-rack on September 7, 1990. Although the carburetor cleaner was used, it is still considered to be a useful product for cleaning washing parts.

Bob Battle, the owner of Battle Aviation stated that the carb cleaner was taken to Norman Excavating in East Helena for their use in cleaning heavy equipment machine parts. The product is being stored in three drums on site.

At Battle Aviation, stoddard solvent is used for cleaning aircraft parts. Bob estimates that he uses 15 gallons of new stoddard per year. The product is stored in a 15 gallon drum with a dispenser spigot. Approximately 10 gallons of stoddard is kept in a 20 gallon parts washer. Spent stoddard solvent is mixed with waste oil and kept in 5 gallon buckets which for the most part have lids on them. After several buckets of used oil/stoddard have accumulated, Bob hauls the waste oil to the Helena municipal landfill where it is used as fuel for heating their heavy equipment storage area.

RECOMMENDATIONS: No violations of hazardous waste regulations were noted since Battle Aviation is an exempt small quantity generator.

It appears that spent stoddard solvent is the only hazardous waste generated at this shop. Spent stoddard solvent is a D001 waste which is hazardous due to its low flash point (<140°).

Settle Aviation is advised to discontinue disposal of used oil/stoddard waste at the Helena Landfill oil burner for two reasons. First, this oil burner is intended for accepting household quantities of used oil (2-3 gallons or less). Second, the Helena Landfill oil burner is only supposed to be accepting straight used oil, not mixtures of used oil and solvent. Although it is not likely that Settle Aviation used oil/stoddard wastes are hazardous, no analyses have been conducted to confirm or deny this. Settle Aviation should make arrangements for having their used oil recycled at an oil recycling facility.

USWEST COMMUNICATIONS

September 27, 1990

RECEIVED

SEP 28 1990

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID & HAZARDOUS WASTE BUREAU

Mr. Ralph Smith
Solid Waste Program Groundwater Specialist
836 Front Street
Helena, Montana 59620

Dear Mr. Smith,

This letter is in response to your letter dated September 26, 1990, concerning U S West's proposal to bury a cable across the City of Helena's sanitary landfill just west of the YMCA building. I wish to first address some misinformation in your letter.

You state "Liability exposure for US West already occurred, when US West installed a telephone line, etc. on the landfill site without prior permission from the City of Helena a couple of years ago." **U S West gained a right of way agreement from the City of Helena prior to placing any facilities in the area as evidenced by the copy of the attached right of way agreement.**

U S West was not informed of the liability referred to in your letter, or even of the numerous concerns expressed by you. U S West satisfied all contingencies set out by the City of Helena in placing our facilities through the area, and therefore assumes no responsibility for the liabilities specified in your letter.

Your department is raising a question of liability for further action in the City of Helena Landfill Site. U S West has halted work on this project because of concerns expressed by your department. Since you and your department are the specialist in this area, I must rely on you to provide information on what can be done to minimize the potential hazards noted in your letter, in order for U S West to place cable in this area, or receive in writing a denial of entering this area for the purpose of burying facilities.

U S West has customer commitments which must be satisfied one way or another and require your prompt response. Please be specific as to whether U S West can proceed and with what contingencies, or that we may not proceed.

Sincerely,

Brent P. Bushnell

Brent P. Bushnell
Manager - Design

cc: T. D. Dupuis
M. C. Breen
M. Hahm

U S WEST
COMMUNICATIONS

RECEIVED

SEP 24 1990

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID & HAZARDOUS WASTE BUREAU

September 27, 1990

Mr. Rick Smith
Solid Waste Program Groundwater Specialist
930 Front Street
Helena, Montana 59620

Dear Mr. Smith,

This letter is in response to your letter dated September 24, 1990, concerning U S West's proposal to bury a cable across the City of Helena's sanitary landfill just west of the YWCA building. I wish to first address some misinformation in your letter.

You state "liability exposure for US West already occurred, when US West installed a telephone line, etc. on the landfill site without prior permission from the City of Helena a couple of years ago." U S West gained a right of way agreement from the City of Helena prior to placing any facilities in the area as evidenced by the copy of the attached right of way agreement.

U S West was not informed of the liability referred to in your letter, or even of the numerous monitors expressed by you. U S West satisfied all conditions put out by the City of Helena in placing our facilities through the area, and therefore assumes no responsibility for the liabilities expressed in your letter.

Your department is treating a question of liability for further action in the City of Helena landfill site. U S West has helped work on this project because of concerns expressed by your department. Since you and your department are the specialist in this area, I must rely on you to provide information on what can be done to minimize the potential hazard noted in your letter. In order for U S West to place cable in this area, or receive in writing a denial of wanting this area for the purpose of burying facilities.

U S West has customer commitments which must be satisfied one way or another and requires your prompt response. Please be specific as to whether U S West can proceed and with what contingencies, or that we may not proceed.

Sincerely,

Brent A. Washnall
Manager - Design

cc: T. D. Dugnie
M. O. Green
M. Hahn

Right of Way No. 17314

RIGHT OF WAY

from

City of Helena

to

The Mountain States Tel. & Tel Co.

Lot or Quarter-Section	N½
Block or Section	30
Town or Township	10 North
Range	3 West
Job No.	MS-935L
Exchange or Toll	Helena
Line & No.	
Lead Code	
Station or Pole Numbers	

Type of Land City Park

Check No. DLUS #3645

Date of Check 6-3-88

Right of way approved and accepted on behalf of Telephone Company

By W. R. Stalnaker

MANAGER. FACILITIES ENGINEERING

Mail to
The Mountain States Tel. & Tel Co.
P. O. Box 1716
560 North Park Avenue, Room 318
Helena, MT 59624

Attention: Right of Way Department T. D. DUPUIS

"State of _____)
:ss
County of _____)

On this _____ day of _____, 19___, before me, the undersigned, a Notary Public in and for the State of _____, personally appeared _____, known to me to be the _____ (President, Vice President or Secretary) of the corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate first above written.

Notary Public for the State of _____
Residing at _____
My Commission Expires _____

FILMED

M.S.T.&T. CO. FORM 7321
(4-82)

R/W 17314

RIGHT-OF-WAY EASEMENT

The Undersigned Grantor (and each and all of them if more than one) for and in consideration of Ten and no/100 - dollars ($10.00- - - - -) and other good and valuable consideration in hand paid by the Grantee, the receipt whereof is hereby acknowledged, hereby grants, bargains and conveys unto The Mountain States Telephone and Telegraph Company, a Colorado corporation, 1801 California Street, Denver, Colorado, 80202, Grantee, its successors, assigns, lessees, licensees and agents a Right-of-Way Easement and the right to construct, operate, maintain and remove such communications and other facilities from time to time, as said Grantee may require upon, over, under and across the following described land which the Grantor owns or in which the Grantor has any interest, to wit:

The North Twenty (20) feet of Lot No. 1 of Block 55, The West Twenty (20) feet of Lots 1 through 16 of Block 56, the West Twenty (20) feet of Lots 1 through 11 of Block 64, and the West Twenty (20) feet of Lots 1 through 17 of Block 65, all in the Central Addition No. 3 to the City of Helena, being in the North Half (N½) of Section Thirty (30), Township Ten (10) North, Range Three (3) West, P.M.M.,

situate in County of Lewis & Clark, State of Montana, TOGETHER with the right of ingress and egress over and across the lands of the Grantor to and from the above-described property, ~~the right to clear and keep cleared all trees and other obstructions as may be necessary and the right to permit other utility companies to use the right of way jointly with Grantee for their utility purposes.~~

R.L.Q.
WJV
5-10-88

The Grantor reserves the right to occupy, use and cultivate said property for all purposes not inconsistent with the rights herein granted.

Signed and delivered this 10th day of May A.D., 1988

At City of Helena

W J Verwolf City Manager
W. J. Verwolf, City Manager

(Add below a form of acknowledgment appropriate for the state in which the right-of-way is located and for the party who is granting the right-of-way, see I.M. 173, Sec. 5 for proper form.)

State of Montana)
ss.
County of Lewis & Clark)

On this 10th day of May, 1988, before me, the undersigned, a Notary Public in and for the State of Montana personally appeared W. J. Verwolf known to me to be the person(s) whose name(s) is subscribed to the within instrument, and acknowledged to me that __he__ executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate first above written.

Barbara R. Brammer
Notary Public for the State of Montana
Residing at Helena
My Commission Expires 2/28/89

This space for recording information

FILMED

State of Montana)
ss:
County of Lewis & Clark)

On this 26th day of May, 1988, before me, the undersigned, a Notary Public in and for the State of Montana, personally appeared W. J. Verwolf, known to me to be the Manager of the municipal corporation that executed the within instrument, and acknowledged to me that such corporation executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my Notarial Seal the day and year in this certificate first above written.

Notary Public for the State of Montana
Residing at Helena
My Commission Expires 8/27/89

NOTARIAL SEAL STATE OF MONTANA

432131
SUE BARTLETT, CLERK & REC.
LEWIS & CLARK CO., MONT.
1988 JUN 17 AM 11:15
PUT OF RECORD AT M BOOK 8 PAGE 9910
BY Shirley McIntosh
10.00

INDEXED
RECORDED

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

STAN STEPHENS, GOVERNOR

FAX #(406) 444-1499

STATE OF MONTANA

OFFICE LOCATION: 836 Front Street
Helena, Montana

MAILING ADDRESS: Cogswell Building
Helena, MT 59620

Solid & Hazardous Waste Bureau
Telephone: (406) 444-1430

File Copy

September 26, 1990

Mr. Brent Bushnell
US West Communications
1022 Chestnut
Helena, MT 59601

Dear Mr. Bushnell:

This letter is in response to your recent request to excavate a trench for the purpose of installing a telephone line through the closed sanitary landfill of the City of Helena. This property, located just west of the YMCA building, was previously a sanitary landfill for the community of Helena and, as you know, landfills can cause groundwater pollution problems and generate explosive gases.

Solid wastes deposited in a landfill decompose by a combination of biological, chemical and physical processes that produce solid, liquid and gaseous byproducts. Factors which affect the degradation of solid wastes in a landfill are: the heterogeneous character of the wastes, the availability of oxygen and moisture, temperature and microbial population. Solid wastes initially decompose aerobically, but as the oxygen supply is exhausted, anaerobic microorganisms predominate and produce methane gas.

Precipitation, surface water or groundwater infiltrating through solid waste can produce leachate. Leachate is a solution containing dissolved and finely suspended solid and microbiological waste products. The amount of leachate produced depends upon the distribution of precipitation, permeability of cover material, evaporation from cover, and freezing and thawing. Leachate can move either as unsaturated or saturated flow. The type of flow depends upon the composition and permeability of the materials underlying the landfill and the configuration of the water table. Movement of leachate is faster through soils with high permeability, such as gravels and sands, and slower through low permeability soils, such as silts and clays. Leachate generated in a landfill generally percolates downward to the water table and joins the groundwater system. This can cause groundwater pollution beneath the landfill and downgradient of the landfill.

The extent and severity of pollution depends on the rate of landfill decomposition, rate of flow and quality of natural groundwater beneath the site, the type of material in the landfill and soils beneath, and downgradient of the landfill. If not properly designed and operated, however, landfills can cause severe groundwater pollution problems.

During landfill decomposition, biological activity produces gas. Methane and carbon dioxide are the major constituents of landfill decomposition gas. The rate of gas production is controlled by the rate at which microbial decomposition is occurring, which is dependent upon moisture content. When decomposition ceases, gas production also stops. Methane production at a landfill may continue for a number of years until decomposition is complete or there is insufficient moisture to allow decomposition.

Methane is considered highly explosive in concentrations between 5 to 15 percent by volume in air (Brunner and Keller,1972). The potential for methane explosions must be considered when solid wastes are deposited in a landfill. Migration of gas beyond the landfill into surrounding soils and/or overlying structures occurs by two basic processes: convection, which is movement in response to pressure gradients; and diffusion, which is movement from areas of higher gas concentrations to regions of lower concentration (Vail and Associates, 1979).

The gas permeability of soils influences the movement of gas. Gas movement is greater in soils with high permeability, such as sands and gravels, and lower in soils with low permeability, such as silts and clays. Dry soils will not significantly impair the flow of gas, but saturated soil such as clay can form an excellent barrier. If the cover on a landfill acts as a barrier, gases will migrate laterally until they can vent to the atmosphere. Methane is insoluble in water; therefore, the water table beneath a landfill will inhibit the depth of gas migration.

Liability exposure for US West already occurred, when US West installed a telephone line, etc. on the landfill site without prior permission from the City of Helena a couple of years ago. There is known groundwater contamination at this landfill site. The financial liability involved in clean-up could be substantial. The potential explosive hazards due to methane gas are very serious. US West should be prepared to assume responsibility for, and may incur liability for, any hazards associated with their activities on the site.

If you have any questions or comments, please don't hesitate to contact me.

Sincerely,

Ralph N. Smith

Ralph N. Smith
Solid Waste Program Groundwater Specialist

cc. Willy Miller, City of Helena Sanitation Dept., 316 N. Park Ave., Helena, MT 59623

Will Seltzer,R.S., City-County Building, 316 N. Park Ave. P.O.Box 1723, Helena, MT 59624

References

Brunner, D.R. and Keller, D.J., 1972, Sanitary Landfill Design and Operation; U.S. Environmental Protection Agency Report SW-65ts, 57p.

Vail, R. and Associates, 1979, Investigations of Methane Gas Problems at High Priority Waste Disposal Sites: State of Colorado, Contract No. C-294525, 45p.

RS/rs

ROUTE SLIP

DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES

TO: DATE: 9/17/90

1. Roger FCG
2. Dozne DJK
3.

- [ ] Approval
- [ ] Comment
- [ ] Necessary Action
- [ ] Note and Return
- [ ] Note and File
- [ ] Investigate
- [ ] Prepare reply
- [ ] Signature
- [ ] See Me
- [ ] As requested
- [ ] For your information
- [ ] Per Conversation

REMARKS:

Lets bce our Legal Unit.

FCG

FROM: Tony

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

STAN STEPHENS, GOVERNOR

FAX #(406) 444-1499

STATE OF MONTANA

OFFICE LOCATION: 836 Front Street
Helena, Montana

MAILING ADDRESS: Cogswell Building
Helena, MT 59620

Solid and Hazardous Waste Bureau
(406) 444-1430

September 17, 1990

Robert R. Johnson
Health Officer
Lewis and Clark County
City County Building
P.O. Box 1723
Helena, MT 59624

Dear Bob:

You requested clarification on the steps necessary to allow the City of Helena to use the Scratch Gravel landfill. Under the Montana Environmental Policy Act (MEPA) it appears that at least a modified Environmental Assessment (EA) would be required for the landfill before DHES could permit a significant change in the operation of the landfill. The data to support the EA would be provided to DHES by the operator of the landfill.

Some examples of significant changes in the operation of a landfill may be: a change from a trench system to an area system of disposal, a large increase in the number or type of vehicles using access roads, a significant change in the type of waste disposed at the landfill, a large change in the daily or weekly volume of wastes received at the landfill and, a radical change in the routes used to transport waste to the landfill.

Under some conditions it would be necessary for a landfill to undergo re-licensure. For example a change in ownership of the landfill or a lateral move of landfilling from the licensed area to an adjacent unlicensed area.

You specifically asked if the County's Scratch Gravel landfill could accept Helena City's municipal wastes. The landfill is licensed now for Class II wastes; but to accept the City of Helena's municipal wastes, an EA would have to be performed by DHES. The Scratchgravel landfill has a long, continuing history of environmental and operational problems and, therefore, considerable additional information would be required by DHES to prepare the EA.

DHES would need sufficient data from the County to determine the operational modifications would be temporary, could be handled properly by the site operator(s) and, further environmental degradation would not occur.

If you would like to discuss this matter in more detail, please call me or drop by and we could talk further.

Sincerely,

Anthony Grover
Solid Waste Program Manager

City of Helena

COMMISSIONER
MIKE MURRAY

607 W. Lawrence
Home: 443-3197
Work: 442-7595

File: L&C county
Helena City L.F.

Helena's Quickprinter
"Printing now . . . . . ."
action print
305 Fuller Avenue
Helena, Montana 59601
442-7595

RECEIVED
SEP 11 1990
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID & HAZARDOUS WASTE BUREAU

Mr. Duane Robertson, Chief
Solid and Hazardous Waste Bureau

Mr. Anthony Grover
Solid Waste Program Manager

Montana Department of Health and Environmental Sciences
836 Front Street
Helena, MT 59620

Gentlemen;

I am seeking clarification on several matters that are now before the Helena City Commission regarding landfills.

I would appreciate it if you could provide me with information on what steps are necessary to allow the City of Helena to use other landfills in this area. Specifically, there are the Donna Tenneson landfill, which is privately owned, and the Lewis and Clark County Scratchgravel landfill.

I need to know if either, or both of these landfills could accept municipal waste and what changes would be required in their operating permits.

Since time is of the essence in this matter, I would be extremely grateful if you could provide me with the requested information at your earliest convenience.

Sincerely yours,

Mike Murray
Helena City Commissioner

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES

STAN STEPHENS, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

FAX # (406) 444-2606

HELENA, MONTANA 59620

Solid & Hazardous Waste Bureau
Telephone: (406)444-2821

March 15, 1990

Helena Landfill
City of Helena
316 North Park
Helena, MT 59724

Dear Landfill Operator:

I have enclosed a copy of the "Montana Solid Waste Management Act", Section 75-10-201 through 75-10-233 M.C.A. for your reference. You will note that the 1989 Montana Legislature passed certain amendments to the act regarding the **provision of groundwater monitoring systems at landfills.** I have highlighted Section 75-10-207, the section requiring groundwater monitoring at certain municipal solid waste landfills and **other disposal sites.**

Items number three and four of this section require owners and operators of certain landfills to submit site specific hydrogeological information to be prepared by each owner/operator. These sections also require a plan for installation of a groundwater monitoring system as necessary. This information is to be evaluated in order to make a decision whether a particular landfill must have a groundwater monitoring system or not, and when the system will have to be installed.

The act requires that this department develop specific rules for implementation of these requirements, and the department is in the process of developing these rules. You will note, however, that "high" priority landfill sites must have groundwater monitoring installed by January 1, 1991 and lower priority sites by January 1, 1992, so little time is available to accommodate a lengthy rulemaking process and still allow communities to fit these requirements into the annual budget process.

Some landfills already have some form of groundwater monitoring system in place, and these will be considered for adequacy to meet these requirements. It is estimated that only about nine landfills in Montana have systems which will be acceptable. We do not have all the information available for some sites, however, and there may be other systems which are satisfactory. Numerous owners and operators have taken the lead on this issue due to the passage of HB 486 and due to the impending EPA landfill regulations, and many are already well along in development of their hydrogeological report, department approval, installation of wells and groundwater sampling.

We request that each landfill owner/operator read Section 75-10-207 carefully to see if his/her landfill meets the population requirements. If your landfill is included in this requirement, we request that you begin to obtain the hydrogeological information necessary for us to make the determination whether monitoring is necessary and when the monitoring will be required. In most cases, you will find it economically advantageous to have your hydrogeological assessment and groundwater well installation completed under the same contract with the same consultant, and we would encourage you to proceed with development of a monitoring system immediately in order to gather as much information as you can about the impact of your landfill prior to the time when the new "Subtitle D" regulations are effective. We do request that plans for monitoring be submitted to this agency for review prior to installation, however, to insure that the system will meet our requirements.

You will also note that the section addresses "municipal solid waste landfills and "**other disposal sites that at any time accepted household waste.**" Some facilities will fall under this requirement even though they may be accepting only "Group III" wastes such as tree limbs, brush or demolition waste. If owners or operators of these sites ever accepted household waste in the past and the sites were open as of October 1, 1989, they will still have to prepare the hydrogeological assessment. The department will endeavor to interpret the actual monitoring requirements based upon a reasonable waste history, however.

In general, most landfill owners/operators will need to secure the services of a qualified geologist, hydrogeologist or geo-technical engineer to prepare the assessment of their sites. We have copies of a consultant list in our office which includes the majority of consulting firms who do business of this kind in Montana, and I would be happy to make this available to you upon request.

If you have any questions, or if I may be of additional service, please contact me.

Sincerely,

James E. Leiter, R.S.
Solid Waste Program Manager

sw\fmltr\hb486.not

4) The lower pit will be used for Class III materials.

I suggested they dig one of the backhoe pits as deep as they could to see if the water in the pit extended beyond any kind of a restrictive layer.

Jointly, we decided that they could take their time moving the 7000 yards of waste. They expected it would take them a month or two. They would move it sooner, but they need their equipment to dig the west pit quicker now that they need to use it.

Helena L.F.

GARVIN ENGINEERING

212 State Street, Suite No. 1
Helena, Montana 59601
(406) 443-0492
William H. Garvin, P.E.

July 26, 1989

Jim Leiter
Montana Solid Waste Bureau
Cogswell Building
Helena, Montana 59620

Dear Mr. Leiter:

I appreciate your quick answers on 25 July 89 when I telephoned you from the Helena landfill. At the time of the call I had stopped the heavy equipment operator from covering asbestos with garbage and stopped him from moving the bags of asbestos with the blade of the equipment. It was my opinion that the asbestos was to be covered with clean dirt, something the operator said was never done in Helena.

Based on the information you gave me I allowed the asbestos to be covered with garbage, but did not allow it to be moved with the blade.

Again I wish to thank you for being available and have a quick answer.

Very truly yours,

William H. Garvin

William H. Garvin, P.E.
WHG/vh

MEMORANDUM

TO: City of Helena Monitoring File

FROM: Jim Leiter

DATE: May 13, 1988

SUBJ: Review of monitoring records

This date I completed a review of monitoring records for this landfill. The records are dated from 12/82 through the F.I.T. investigation of 9/87. I have summarized my findings for purpose of reference in the future.

There have been 15 GW monitoring well installed by the city at the site. In addition, the F.I.T. installed two additional wells, which are currently capped. Three of the wells are "upstream" of Last Chance Gulch. There is one well up near the YMCA and there are 4 wells in the oldest section of the landfill. The additional two F.I.T. wells are located in this area.

There are three wells located east of the drainage pipe in the expansion area. Two wells are located west of this pipe in the area currently being trenched, and there is one well located at the base of the Carroll College hill, west of the utility building.

Several of the wells are blocked or have been placed out of service by landfill or other construction activities. These include: #2, #6, #82-1, and #83-8. In addition, well #5 may be temporarily lost due to lack of a marking.

The monitoring records appear to show that the landfill is underlain by fair to poor quality water. Most monitoring information is obscured by the fact that the background wells in Last Chance Gulch are of poor quality from the drainage of the gulch, including metals from run-off, etc. There have been periodic exceedences in nitrates, cadmium and zinc noted in these wells.

Despite the poor background available for comparison, several trends seem apparent. Water quality appears to be degraded beneath the landfill to a varying degree, with seasonal and spatial differences. The oldest area of the site (soccer field area) is the most degraded. This is followed by poorest water quality in wells #6 and #7, in the center of the Last Chance Gulch drainage through the site. Parameters showing elevations over apparent background include hardness, chlorides, nitrates, lead, iron and manganese. The three metals seem particularly elevated, far exceeding drinking water requirements. The affect seems variable, however, over time. Other parameters show some impact, but to a less significant degree.

The wells on the east side of the site, the last area landfilled, show periodic high levels of nitrate. It would appear that the sewer line through the landfill may leak periodically, elevating the nitrate levels to as high as 35 p.p.m. Well 82-1 is blocked, however, so it is difficult to tell whether or not the nitrate contamination spreads to the center portion

MEMORANDUM

TO: City of Helena Monitoring File

FROM: Jim Yeater

DATE: May 13, 1988

SUB: Review of monitoring records

This date I completed a review of monitoring records for this landfill. The records are dated from 12/12 through the 2.1.T. Investigation of 7/87. I have summarized my findings for purpose of reference in the future.

There have been 15 GW monitoring well installed by the city at the site. In addition, the 2.1.T. installed two additional wells, which are currently capped. Three of the wells are "upstream" of least Chance Gulch. There is one well on best the YMCA and there are 4 wells in the oldest section of the landfill. The additional two 2.1.T. wells are located in this area.

There are three wells located east of the drainage pipe in the expansion area. Two wells are located west of this pipe in the area currently being excavated, and there is one well located at the base of the Carroll College wall, west of the utility building.

Several of the wells are blocked or have been plugged out of service by landfill or other construction activities. These include: #2, #6, #22-1, and #23-D. In addition, well #5 may be temporarily lost due to lack of a marking.

The monitoring records appear to show that the landfill is underlain by very to poor quality water. Most monitoring information is obscured by the least the background wells in Last Chance Gulch are of poor quality from the drainage of the gulch, including metals from run-off, etc. There have been periodic exceedances in nitrates, sodium and also noted in these wells.

Despite the poor background available for comparison, several trends were apparent. Water quality appears to be degraded beneath the landfill to a varying degree, with seasonal and spatial differences. The oldest area of the site (lower field area) is the most degraded. This is followed by poorer water quality in wells #6 and #7, in the center of the Last Chance Gulch drainage through the site. Parameters showing elevations over upgrade background include hardness, chlorides, nitrates, lead, iron and manganese. The three metals seem particularly elevated, far exceeding drinking water requirements. The effect seems variable, however, over time. Other parameters show some impact, but to a less significant degree.

The wells on the east side of the site, the last area landfilled, show periodic high levels of nitrate. It would appear that the water line through the landfill may leak periodically, elevating the nitrate levels to as high as 35 p.p.m. Well 22-1 is blocked, however, so it is difficult to tell whether or not the nitrate contamination spreads to the center portion

of the site from the sewer pipe or from the soccer field area of the site. One sample of well #6 showed nitrates above DWS, but #7 has never been affected to the point of exceeding DWS. Background well #1 has also shown a high nitrate spike in the past, but is similarly located very near the sewer line. Other wells near the line are #4 and #82-2, which both show high nitrates.

Wells on the west side appear unaffected by landfilling to date. The most recent trench has been dug north of the monitoring wells, however, and is essentially unmonitored. This should be changed. The "background" well for this area is the only well drilled into limestone bedrock, and it appears to have slightly different water quality than the other wells. In general, groundwater is at a deeper level in the west potion of the site and landfilling has remained further above the aquifer below this area than in the east.

The draft F.I.T. investigation notes several organic parameters likely in groundwater below the soccer field area. These include tetrachloroethene, benzene, toluene, m- & p- xylene, and o-xylene. Only TCE has been documented in groundwater. Some presence of chloroform is noted in surface water below the landfill and not above it, but levels are very low. No conclusions have been drawn from the F.I.T. yet. Manganese is documented as extremely high in several wells on site. The report says that high levels are not uncommon in the Helena Valley aquifer, but the levels jump dramatically across the landfill area.

of the site from the sewer pipe or from the soccer field area of the site. The sample of well 60 showed nitrates above DWS, but 47 was never been affected to the point of exceeding DWS. Background well 71 has also shown a high nitrate spike in the past, but is similarly located very near the sewer line. Other wells near the line are 74 and 722-2, which both show high nitrates.

Wells on the west side appear unaffected by landfilling to date. The most recent result has been the month of the monitoring wells, however, and is essentially unmonitored. This should be changed. The "background" well for this area is the only well drilled into limestone bedrock, and it appears to have slightly different water quality than the other wells. In general, groundwater is at a deeper level in the west portion of the site and landfilling has remained further above the aquifer below this area than in the east.

The three P.I.T. investigations noted several organic parameters likely in groundwater below the soccer field area. These include tetrachloroethene, benzene, toluene, m- & p- xylene, and o-xylene. Only TCE has been documented in groundwater. Some presence of chloroform is noted in surface water below the landfill and not above it, but levels are very low. No conclusions have been drawn from the P.I.T. yet. Manganese is documented as extremely high in several wells on site. The report says that high levels are not unknown in the Helen Valley aquifer, but the levels jump dramatically across the landfill area.

HELENA MONITORING SUMMARY

Background Quality (Wells #1, #83-5 and #83-6)

Hardness	330 - 950
Conductivity	800 - 1000
Chlorides	20 - 55
Total Alkalinity	200 - 320
NO3	0 - 35
Na	10 - 70 (highest in #1)
Cd	Exceedences in: #1(2X), #83-5(1X)
Zn	.03 - 1.2 (highest in #1)
Cu	0 - .37 (highest in #1)
Ni	0 - .14 (highest in #1)
Pb	.01 - .33 (higher all along)
Fe	0 - .11 (highest in #1/few occurrences)

Oldest Area of Landfilling (Wells #4, #5 and #83-7)

Hardness	580 - 1200
Conductivity	1220 - 2300 (highest in #83-7)
Chlorides	68 - 190 (highest in #83-7)
Total Alkalinity	280 - 560 (consistent)
NO3	.25 - 19 (highest in #4, low in other two)
Na	20 - 100 (consistent)
Cd	Exceedences in #5(2X), #83-7(2X)
Zn	.07 - 3.3. (highest in #5)
Cu	.004 - .34 (highest in #83-7)
Ni	.009 - .20 (highest in #83-7)
Pb	.01 - 1.3 Exceedences in #5(2X), #83-7(4X)
Fe	.06 - 7.66 Almost all exceeded

East of Last Chance Drainage (Wells #82-1 and #82-2)

Hardness	370 - 570 (highest in #82-2)
Conductivity	822 - 1200 (increases with time)
Chlorides	34 - 42
Total Alkalinity	180 - 200
NO3	6 - 35 (almost all exceedences)
Na	10 - 25
Cd	.01 One exceedance in 82.2
Zn	.01 - .56 (highest in #82-2)
Cu	.01 - .04
Ni	.006 - .03
Pb	.01 (all)
Fe	N.D. - .88 (highest in #82-1)

BUREAU MONITORING SYSTEMS

Background Quality (Wells #1, 1D-3 and #81-6)

Hardness	210 - 950
Conductivity	850 - 1000
Chlorides	70 - 95
Total Alkalinity	290 - 320
NO3	1 - 35
Na	10 - 70 (highest in #1)
Ca	Exceeded on one #1(2X), #83-5(1X)
Zn	.03 - 1.2 (highest in #1)
Cu	0 - .37 (highest in #1)
Ni	0 - .14 (highest in #1)
Pb	.01 - .23 (highest all wells)
Fe	0 - .11 (highest in #1/low occurrences)

Discharge Area of Landfilling (Wells #4, #5 and #83-4)

Hardness	580 - 1200
Conductivity	1210 - 1300 (highest in #83-4)
Chlorides	68 - 150 (highest in #83-7)
Total Alkalinity	240 - 330 (consistent)
NO3	.15 - .61 (highest in #4, low in other two)
Na	30 - 100 (consistent)
Ca	Exceedence in #3(2X), #83-7(1X)
Zn	.07 - 1.3. (highest in #3)
Cu	.004 - .34 (highest in #13-7)
Ni	.003 - .20 (highest in #83-7)
Pb	.01 - 1.3 Exceedence in #3(2X), #83-7(1X)
Fe	.06 - 7.35 Always all exceeded

Edge of Last Chance Drainage (Wells #76-1 and #81-3)

Hardness	170 - 270 (highest in #76-1)
Conductivity	407 - 1100 (increases with time)
Chlorides	34 - 42
Total Alkalinity	180 - 200
NO3	6 - 35 (always all exceedence)
Na	10 - 25
Ca	.04 One exceedence in 81.3
Zn	.01 - .33 (highest in #81-3)
Cu	.01 - .04
Ni	.005 - .03
Pb	.01 (Zero)
Fe	R.D. - .25 (highest in #81-1)

Drainage Center (wells #6 and #7)

Hardness	410 - 660
Conductivity	600 - 1300 (highest in #6, increases slowly in #7, 600 - 900)
Chlorides	22 - 60
Total Alkalinity	180 - 580 (range of values all w/in #7)
NO3	1 - 12 (one Exceedence in #6)
Na	10 40
Cd	Generally low, One Exceedance in #6, .01)
Zn	.0069 - .35 (slightly higher in #7)
Cu	.001 - .39 (highest in #6)
Ni	.01 - .08
Pb	.01 - .28 Exceedances: #6(1X), #7(3X)
Fe	.04 - 16.8 Exceedances: #6(1X), #7(1X)

West Expansion Area Background (Well #82-3)

Hardness	370 - 1190
Conductivity	1160 - 1300
Chlorides	25 - 40
Total Alkalinity	370 - 500
NO3	1.9 - 9.8 (highest early in sampling)
Na	20 - 40
Cd	Insig.
Zn	.01 - .05
Cu	.01 - .06
Ni	N.D. - .01
Pb	Less than .01
Fe	N.D. - Less than .03

West Expansion Area North of First Trench (Wells #82-4 and #83-8)

Hardness	260 - 620 (highest in #83-8)
Conductivity	750 - 1150 (highest in #83-8)
Chlorides	31 - 42
Total Alkalinity	220 - 390 (highest in #83-8)
NO3	1.2 8.8 (highest in #82-4)
Na	7 64 (range entirely w/in #83-8)
Cd	N.D. - .005
Zn	Less than .01 - .14
Cu	N.D. - .18 (highest in #83-8)
Ni	.005 - .03
Pb	Less than .01 - .05
Fe	N.D. - .19 (most samples N.D.)

Drainage Center (wells #6 and #7)

Hardness	410 - 600
Conductivity	800 - 1250 (highest in #6, increases slowly in #7, 600 - 900)
Chlorides	32 - 60
Total Alkalinity	180 - 340 (range of values all w/in #7)
SO3	1 - 12 (one determination in #6)
Na	16 - 40
Ca	Generally just the Exchangeable in #6, .01
Zn	.0089 - .35 (slightly higher in #7)
Cu	.004 - .39 (highest in #6)
Ni	.01 - .08
Pb	.01 - .38 Exchangeable: #6(1X), #7(3X)
Fe	.04 - 16.8 Exchangeable: #6(1X), #7(4X)

Mass Expansion Area Background (Well #82-3)

Hardness	370 - 1190
Conductivity	1100 - 1300
Chlorides	25 - 40
Total Alkalinity	370 - 500
SO3	1.3 - 9.8 (highest early in sampling)
Na	30 - 40
Ca	Trace.
Zn	.01 - .05
Cu	.01 - .06
Ni	N.D. - .01
Pb	Less than .01
Fe	N.D. - Less than .07

Mass Expansion Area North of Filter Plant (Well #82-4 and #83-8)

Hardness	200 - 820 (highest in #83-8)
Conductivity	750 - 1150 (highest in #83-8)
Chlorides	34 - 1
Total Alkalinity	220 - 320 (highest in #83-8)
SO3	1.3 - 8.8 (highest in #82-4)
Na	7 - 8 (range equately w/in #83-8)
Ca	N.D. - .002
Zn	Less than .01 - .14
Cu	N.D. - .18 (highest in #83-8)
Ni	.003 - .03
Pb	Less than .01 - .05
Fe	N.D. - .13 (most samples N.D.)

TRENDS ACROSS SITE FROM BACKGROUND DOWNSTREAM

*	Hardness	Rising, but highest in old area and then new area. Well nearest Carroll high.
	Conductivity	Highest in old area and background. Rising.
*	Chlorides	Highest in old area, 3X others.
	Total Alkalinity	Insig. Low, approx at D.W.S. in old area.
*	NO3	#82-1 and #82-2 bad, but background suspicious. Appears high near sewer line through site.
	Na	Insig.
	Cd	Insig. (poor background)
	Zn	Insig. (slightly worse in old area, background one of highest.)
	Cu	Insig.
	Ni	Insig.
*	Pb	Probably evidence of plume. Well above D.W.S. Background high at times.
*	Fe	Well above D.W.S. Highest in old area and in center of drainage. None in Background.
*	Mn	High in F.I.T. report. Background 350 micrograms, #83-7 11,400 micrograms. Report says manganese oxides naturally high in valley.

TABLE 4 ACROSS SITE FROM BACKGROUND MONITORING

* Hardness	Rising, but highest in old area and then new area. Well meeting Control High.
Conductivity	Highest in old area and background. Rising.
* Chlorides	Highest in old area, 3X others.
Total Alkalinity	Insig. Low, typical as B.W.S. in old area.
* NO3	FM4-1 and FM7-2 bad, not background suspicious. Appears high near River line through site.
Na	Insig.
Ca	Insig. (over background)
Mg	Insig. (slightly higher in old area, background was at highest.)
Cu	Insig.
Ni	Insig.
* Pb	Possibly evidence of plume. Well above D.W.S. Background high at times.
* Fe	Well above D.W.S. Highest in old area and in center of drainage. Near in background.
* Mn	High in F.I.T. report. Background 250 micrograms, FM3-7 11,500 micrograms. Report says manganese values naturally high in valley.

2:C

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City leases more land at its dump site

Helenans were guaranteed another 2½ years of garbage dumping Monday when the city commission approved an agreement with Burlington Northern Railroad to lease a 200-foot strip of land next to Helena's current landfill site.

For an annual fee of $2,500, city landfill crews may start filling in the land just south of the Burlington Northern tracks. The current landfill site, north of Carroll College and formerly leased to the city, was donated to the city by BN.

11-10-81

Office Memorandum

STATE DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

TO : Helena Landfill File

DATE: 6/30/87

FROM : Jim Leiter

SUBJECT : Liquid Disposal in Landfill

On June 29, 1987, Mark Weston called and said that someone had illegally disposed of a 55 gallon barrel in the landfill. The compactor struck the barrel and it ruptured. The operator believed that the liquid seeped from the barrel was perchlorethylene, apparently from a label on the barrel or from the odor. He covered the barrel with waste and left the area. Mark wanted to know what to do with the material and whether or not his personnel should wear protective clothing, breathing apparatus, etc.

Don Vidrine had Bill Hooper contact Mark about protective equipment and we advised Mark to bury the waste rather than try to excavate it.

Mark advised me later in the day that they had been able to get in touch with the person who dumped the waste. The barrel, according to that person, contained a gallon of penta, 10 gallons of diesel, and about 14 gallons of water. The person said they did not know what else to do with it other than take it to the landfill.

Mark told me that the material was buried in a spot over about ten feet of garbage in the western part of the site. He estimated that groundwater lies approximately 15 feet below the trench bottom in this area. From his estimates, he assumed that monitoring well #7 would be immediately downstream from the buried waste. We took no further action at this time, but I told Mark that we would consider checking some parameters at Monitoring well #7, either on a regular basis the next few sampling episodes or on a special basis.

M E M O R A N D U M

TO: SANITATION DEPARTMENT STAFF, Willie Miller

FROM: MSW S. Weston

DATE: February 11, 1987

SUBJECT: Liquid and Hazardous Waste
Disposal at City of Helena Landfill

Federal and state regulations regarding hazardous and solid wastes have become significantly more stringent in the last few years. In addition our state sanitary landfill license specifically restricts disposal of liquid wastes in the landfill. This memo will provide general guidance to sanitation employees regarding wastes acceptable at our landfill.

As you know, thousands of chemicals and other waste products exist in our society and eventually find their way to a landfill. Our most important goal is to operate the landfill within the requirements of our license and protect the surrounding environment. With this goal in mind, follow this simple rule:

IF IN DOUBT ABOUT ANY WASTE PRODUCT, REJECT IT
AT THE SCALEHOUSE AND CONTACT EITHER THE FOREMAN
OR THE DEPARTMENT HEAD FOR FURTHER INSTRUCTIONS.

We hear the word hazardous waste daily, often used incorrectly. A hazardous waste is a waste that exhibits the following characteristics (definitions are simplified).

1. Ignitability - flash point less than 140 degrees fahrenheit, ignites spontaneously, flammable gases, and oxidizes.

2. Corrosivity - pH less than 2.0 or greater than 12.5.

3. Reactivity - unstable and readily undergoes violent change, reacts violently with water, form potentially explosive mixtures with water.

4. EP Toxicity - contains concentrations of certain chemicals in excess of federal RCRA regulations for EP toxicity test.

Hazardous constituents are listed in 40CFR Part 261, and will be available in the scalehouse.

Hazardous wastes from any one customer can be disposed in the landfill if the weight does not exceed 220 lbs. per month. 220 lbs. per month is approximately equal to 25 gals.. However, due to our concern of liquids in the landfill, maximum volume of liquid from any one customer shall not exceed 10 gals. per month. Keep track of the volume of liquid waste and weight of hazardous wastes in contractor disposal records. Liquids in excess of 10 gals. per month will have to solidified before disposal in the landfill.

Household quantities of liquid wastes (i.e. paints, solvents, cleaning agents, insecticides, etc.) measuring less than a gallon each may be disposed in the landfill.

Acute hazardous wastes are wastes which are fatal to humans in low doses. No acute hazardous wastes will be allowed in the landfill. The list of acute hazardous wastes is found in 40CFR, Subpart 261.33 and this list will be available in the scalehouse.

To assist us in maintaining better records, the attached liquid/hazardous waste log will be maintained. We cannot accept over 220 lbs. total of hazardous waste from any one generator. We will not accept acutely hazardous waste at the landfill.

For reference two (2) publications will be available at the scalehouse.

1. Hazardous Waste Training Manual for Montana Small Generators.

2. Notification of Hazardous Waste Activity, EPA Form 8700-12.

cc: William Verwolf
Richard Nisbet

dew/hazwaste.san

Commissioners
Russell J. Ritter, Mayor
Rayleen Beaton
Michael J. DaSilva
Rose Leavitt
Blake J. Wordal

William J. Verwolf
City Manager

GUARDIAN OF THE GULCH
City of Helena

City-County Admin. Bldg.
316 North Park
Helena, MT 59623

Phone 406/442-9920

December 26, 1986

Mr. James Leiter
Solid and Hazardous Waste Bureau
Cogswell Building
Helena, Montana 59620

RE: City of Helena Sanitary Landfill

Dear Jim,

Thank you for responding to my request updating me on the conditions for approval to operate the current landfill. This letter will provide additional information on the status of each condition.

1. Groundwater monitoring: We perform groundwater sampling on the landfill wells twice a year: Once in the spring (April) and once in the fall (September). The report including the September 1986 data is attached. We have expanded the parameters tested from those listed in earlier studies. In addition we measure the depth to groundwater. Our goal in 1987 is to measure the depth at least six (6) times per year. We also measure the methane concentration in each well six (6) times per year. Several of the wells have been vandalized over the years. We will be rehabilitating several of the wells in 1987.

2. In October we seeded three (3) acres in Phase III on the east side of the filled area near North Main. Grass should germinate next spring. We expect to finish an additional three (3) to five (5) acres and seed it late spring 1987.

3. No additional comments.

4. Final cover placement: The final 2.0 feet of cover material on completed landfill cells is comprised generally of the native material located on site. The material is classified as clayey sand and gravel. Clay found on site has been stockpiled and used on the final six inches of cover. Surface water drainage is excellent at the site. No offsite surface water flows

onto the filled areas. The filled areas have a final surface slope of 2% to 4%. Rainfall and snow melt water has a high potential of flowing off the filled areas before it percolates. Snow is no longer stored in the landfill. Our low precipitation (12 to 15 inches per year) greatly reduces the potential for percolation. Once the grass is established it is conceivable that only a small fraction of the precipitation would have the potential of percolating to the groundwater. The compacted garbage will absorb some of the percolated moisture. We have also noticed while excavating on site the excavated material has a very low moisture content (extremely dry). This supports our belief that very little moisture percolates deeply at this particular site.

Based on the report "Evaluating Cover Systems for Solid and Hazardous Wastes" EPA SW-867 September 1980, clayey sands and gravels should have a water percolation rate (permeability) of 1×10^{-4} cm/sec. The requirements for our final cover are a permeability rate of 1×10^{-3} cm/sec. Based on our material classification the permeability rate of the final cover should meet our license requirements. We will test the permeability rate of the final filled area in the spring. On site testing of cover material is difficult as we have discussed. The State Solid and Hazardous Waste Bureau does not have a standard procedure for this test. I propose a test similar to the one used for wastewater pond liners. We will drive a 10 - 15 inch PVC pipe through the cover material. We will saturate the column of soil in the cylinder. Then we will begin the test by filling the column six (6) inches above the top of the soil and measuring the water level drop and calculating a permeability rate.

In addition I have evaluated the erosion potential from our site in accordance with the above reference. The site should have very low rate of erosion on the order of 0.1 - 0.2 tons per acre and will reduce as the grass becomes more established.

5. No additional comments.

6. See comments under number 4.

7. See comments under number 4.

8. No additional comments.

9. As you are aware, litter control has been a difficult task on the east end of the Phase III landfill while we were filling that area. The fence along North Main was used to catch loose debris. The result was an unsightly visual problem. Now that we have moved further west we have installed a temporary fence to catch loose papers. We have installed it on the east and north side of the active fill. Papers are cleaned routinely and after windy days. The staff is currently removing litter deposited between the tracks at the north side of the fill. We will continue to control the litter from our fill. As we move further west into deep narrow trenches, litter will be more easily controlled. We are proud of the improvement in litter control at our site.

10. No additional comments.

11. No additional comments.

We appreciate your involvement in monitoring our landfill operation. We are always open to suggestions to improve our operation and welcome the bureau's input.

Sincerely,

Mark Weston

Mark S. Weston
Environmental Engineer, Wastewater Department
City of Helena, Montana

cc: William Verwolf
Richard Nisbet
Rose Leavitt

enclosure

M E M O R A N D U M

TO: Richard Nisbet

FROM: Mark S. Weston

DATE: February 20, 1987

SUBJECT: Sanitary Landfill Phase III
Capacity Analysis

As you are aware, the Sanitary Landfill Phase III capacity has been in question for several years. The modification of the BN lease in 1986 significantly reduced the capacity of the landfill. The modified lease eliminated landfilling within 200 feet of the center line of the right of way from the north tracks. Originally we had planned to landfill within 50 - 75 feet from the center line of the right of way. The lost capacity from the lease modifications is 2.6 years.

The Engineering Department has resurveyed the Phase III site and recalculated the volumes of the filled and unfilled areas. Phase III had 908,000.0 cubic yards of fillable volume. 363,000.0 cubic yards have been filled and 266,000.0 cubic yards were lost due to BN lease change and under excavating Pit #1. 279,000.0 cubic yards remain to be filled.

Remaining fillable capacity in Phase III amounts to 3.5 years. I propose that we approach BN and ask them to reconsider the lease. Lost capacity from lease change amounts to 2.6 years. A summary of the phase III - Sanitary Landfill capacity analysis is attached.

cc: William Verwolf w/attachment
Willie Miller w/attachment
James Leiter w/attachment
Barry Damschen w/attachment

dew/PhaseIII.san/PC6

SUMMARY PHASE III - SANITARY LANDFILL CAPACITY ANALYSIS

Analysis Date:	Jan 1987
Initiate Operation:	Aug 1982
Operation time:	4.5 Years

Original Total Fillable Volume:	908,000.0 C.Y.
Fillable Volume lost in 1986 to BN Right of Way:	211,000.0 C.Y.
Fillable Volume used to date:	363,000.0 C.Y.
Fillable Volume lost in Pit #1:	55,000.0 C.Y.
Fillable Volume Remaining:	279,000.0 C.Y.

CALCULATIONS

Weight of refuse per year: (4 year average)	28,600.0 Ton/Yr
Total weight during operation: (4.5 Yrs)(28,600 Ton/Yr)	128,700.0 Tons
Weight per fillable volume: (128,700 Ton)/(363,000 C.Y.)	.354 Tons/C.Y.
Fillable volume used per year: (363,000 C.Y.)/(4.5 Yrs)	80,700.0 C.Y./Year
Years lost in 1986 to BN R/W: (211,000 C.Y.)/(80,700 C.Y./Year)	2.6 Years
Years remaining in landfill: (279,000 C.Y.)/(80,700 C.Y./Year)	3.5 Years

*Pit #1 was not fully excavated before placed into use.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

Solid & Hazardous Waste Bureau
Telephone: 406-444-2821

HELENA, MONTANA 59620

December 3, 1986

Mark S. Weston, Environmental Engineer
City of Helena
316 North Park
Helena, MT 59623

Dear Mark:

I have enclosed a copy of my November 15, 1982, letter to Dick Nisbet. This letter is the approval letter for the city to move into the "expansion area" between the railroad tracks. This is the landfilling area currently in use.

You have asked whether or not you need to do additional work to satisfy the requirements of that letter. In the 1982 letter, I specified eleven conditions for approval. Any comments I currently have will be found behind the appropriate number below:

1. Groundwater monitoring - The August 26, 1982 Hydrometrics Report committed the city to semi-annual groundwater quality sampling at the landfill. The required tests were taken once in 1982, once in 1983, twice in 1984, once in 1985 and once so far in 1986. I believe, however, that you have advised me that a second sample set has been taken for 1986. The city needs to continue the sampling on a twice yearly basis. Samples should be taken at approximately the same time each year.

2. Drainage improvements and re-vegetation - Drainage requirements provided in your plan have been adhered to satisfactorily. Don Lewis stated that the city would re-vegetate each trench upon its completion. To my knowledge, you've prepared finished areas for seeding but have not actually seeded.

3. Proper application of daily cover - Daily cover is applied adequately.

4. Final cover placement - Two feet of adequate soils must be placed over finished areas. The cover is consistently applied at the end of filling in any given area. To my knowledge, there haven't been permeability tests run on the finished areas. Due to the fact that precipitation and infiltration at the Helena landfill is low, this item is not as critical as if we were located in a wetter area. Since the expansion area has been built up with good drainage controls, cover soil permeability is less important. The tests must eventually be

run, however, to demonstrate that adequate soils are in place prior to closure.

5. New well construction information - This item has been completed.

6. Cover materials must meet minimum requirements of the regulations - The tests in item #4 will demonstrate this. Meanwhile, some changes in landfilling methods in the "drainage" part of the expansion area have resulted in greater separation to groundwater. This has obviated the need for less permeable cover materials.

7. Lower permeability soil stockpiles - This is only necessary if the permeability tests in item #4 show non-complying soils. The city will be expected to have used adequate soils at the time of closure and to recover areas not covered adequately. The permeability tests will determine if soil stockpiles are necessary.

8. Acceptance of sewage sludges - Appropriate approvals have been granted

9. Litter control - The one operational weakness which has been demonstrated in the new area is litter control. I have noticed a great improvement in the situation since the eastern part of the site has been completed. Good litter control is an ongoing requirement.

10. Remedial action plan - To date, monitoring doesn't show that the landfill is impacting area groundwater. No remedial action plan is needed at this time.

    Nitrates/nitrites have periodically shown up high in wells number 4 and number 82-2 on the landfill site. Higher levels have also been observed in background wells number 1 and number 83-6. It still appears that the sewer line through the landfill may be leaking and causing this problem. This should be checked.

11. Cross-sectional plan at the landfill - This item has been satisfactorily completed.

I hope this letter satisfactorily addresses your request. If we may be of assistance, or if we can answer any questions, please contact me.

Sincerely,

Jim Leiter

Jim Leiter
JL:jv
CC: Will Selser, Lewis & Clark Co. Health Dept.

ten. However, to demonstrate that adequate soils are in place prior to closure.

3. New well construction information - This item has been completed.

4. Other materials that meet minimum requirements of the regulations - The items in item 4a will demonstrate this. Materials, some remaining in landfilling methods in the "waste-age" pits of the expansion area have resulted in greater maintenance in groundwater. This has obviated the need for more permanent cover materials.

5. Longer permanently moist acceptables - This is only necessary if the groundwater levels is less 4m above non-compacting soils. The site will be required to have more adequate soils at the time of closure and to increase areas that contain adequately the groundwater among soil; therefore, it will accordingly are necessary.

6. Assurance of average closure - Appropriate documents have been placed.

7. Litter control - The new operations [illegible] will now come [illegible] in the new area in litter control. A new method [illegible] to the litter problem [illegible] of the site has been accomplished. Only [illegible] is required [illegible].

8. Special closure plan - To date, [illegible] lower's [illegible] the liability in impacting area [illegible]. The [illegible] closure plan is needed [illegible].

Monitoring wells have particularly [illegible] in [illegible] number - and number 27-2 on the landfill site. Number [illegible] have been observed in [illegible] wells number 1 and number 21-6. It will appear that the [illegible] the landfill may be leaking and causing [illegible]. This should be checked.

11. Final closure plan at the landfill - This item has been [illegible] completed.

I hope this letter satisfactorily addresses your concerns. If we may be of assistance, or if we can answer any questions, please contact me.

Sincerely,

[illegible]

[illegible]

cc: Will Dobbs, [illegible] & Clark Inc. [illegible]

Dream dump now a nightmare

SEATTLE (AP) — Twenty years ago the city's newly opened Midway Land Reclamation Site was touted as a dream dump that would in time become a park: Four million cubic yards of waste later, it has become a stinking, poisonous, costly nightmare.

Methane, an odorless and explosive gas formed by decomposition of material that never was supposed to go into the site, threatens to cause widespread evictions and tens of millions of dollars in potential city liability unless the gas is extracted safely.

Dangerous methane levels in the past six months have forced the evacuation of 11 families, the most recent one last week, to motels and apartments at city expense while the city provides 24-hour security patrols of their homes.

One family even had to leave in the middle of Thanksgiving dinner.

Residents also complain of foul odors, especially from water that has seeped through hundreds of tons of illegally dumped organic and chemical wastes and then resurfaced in residential and business areas.

Some say their health has been affected. Many fear loss of property values, and the first of an anticipated flood of liability claims has begun percolating toward the courts.

On Jan. 8 Melvin and Ann Curtiss filed a claim with the city, the first step toward a lawsuit. Other homeowners have talked of a class-action lawsuit.

Mr. and Mrs. Curtiss say they experienced "headaches, nosebleeds, vomiting, stress and discomfort for more than six months" before they left their home in October. They are seeking $64,500 for their home, at least $14,000 for expenses and legal fees and "in excess of $500,000" for emotional damage.

Because of litigation, city claims manager Robert Jeans and other officials have refused to comment on how garbage and toxic chemicals got into the dump, which is in the suburb of Kent, near Seattle-Tacoma International Airport. It was supposed to be used only for dry construction debris and similar wastes.

But Bob Brown, a truck driver, who lives nearby and who fought the dump from the time it was proposed, said "We watched absolutely everything go in there.

"Anything anybody didn't want to go anywhere else went to Midway. I'm talking about chemicals, paint solvents, you name it," he said.

The dump was closed in September 1983, but since then officials have had to set fires to burn off the foul-smelling methane and it was nearly two years after the closing that evacuations became necessary.

The city has spent $1.5 million on a temporary system to vent the gas from below the surface.

Lt© - Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

Solid & Hazardous Waste Bureau
Telephone: 406-444-2821

HELENA, MONTANA 59620

September 9, 1985

Mr. Richard E. Wegner, P.E.
Chief, Materials Bureau
Department of Highways
2701 Prospect Avenue
Helena, MT 59620

Dear Mr. Wegner:

Gene Danicich has requested that I send copies of my last year's letters (enclosed) to Mark Weston with the City of Helena so that the city will again accept asphaltic waste materials from the lab. My letter of September 20, 1984 is basically still accurate, but it should be noted that the requirements for small quantity generators of hazardous wastes have changed somewhat. As of this fall, generators producing from 100 kg. to 1000 kg. of hazardous waste have to use manifests for tracking their wastes. Should any of the materials being discarded be hazardous wastes, you will want to take note of this change.

I also note that your laboratory has obtained an EPA identification number as a generator of hazardous wastes. I'd recommend that traffic point or any other small quantities of liquid or hazardous waste be shipped to a secure landfill site with your other hazardous wastes. This, of course, assumes that you periodically ship wastes to a secure disposal site.

If you have questions or we may be of further service, please contact us.

Sincerely,

James E. Leiter
Solid and Hazardous Waste Bureau

JEL:ao

Enclosures

cc: Mark Weston, Sanitation Engineer, City of Helena, Helena
Gene Danicich, Dept. of Highways, Helena

City ordered to control gas from its landfill

By MICHAEL CRATER
IR Staff Writer

The city must monitor and control methane gas coming out of its landfill and onto private land, and must pay some adjacent property owners one-fourth the value of their land, District Judge Henry Loble has ruled.

Loble declined to make the city compensate the property owners for the unsightliness or bad odors coming from the dump when the part nearest their property was in use, saying that since their property hadn't been developed yet, any damage on that account was temporary.

The parts of the landfill nearest the property in dispute have been filled and will soon be covered with topsoil and seeded, Loble noted.

Loble did decide that methane gas coming onto the property of Richard Larson and Ronald Robinson must be controlled. The gas could collect underground in explosive quantities, and that would prevent them from developing the land, Loble said. When they prepare to develop the land, the city must control the gas, either with a barrier or with vents, Loble ruled. And in the meantime, the city must monitor the gas, he said.

Loble arrived at the figure of one-fourth of the property value by melding reports from two appraisers. The city's monetary loss comes to $6,315.50 plus attorney fees and the cost of the monitoring and control.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

May 21, 1985

Mr. Mark Weston
Wastewater/Sanitation Engineer
City of Helena
City County Building
Helena, MT 59623

Dear Mark:

I have driven on Last Chance Gulch by the city landfill several times this spring and noted that there is a tremendous amount of litter downwind from the active area and along the railroad right-of-way. Daily control of litter and removal when necessary is an essential part of landfill operation.

Please arrange as soon as possible to have a crew pick up the litter and return it to the active area for burial. I'd appreciate a call from you or a short letter advising of your progress and plans to control the problem in the future.

If you have questions or I can be of assistance, please contact me.

Sincerely,

JAMES E. LEITER
Solid and Hazardous Waste Bureau
Telephone: (406) 444-2821

JEL:vc
cc: Will Selser, Lewis & Clark County Health Department

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

(406)444-2821

HELENA, MONTANA 59620

May 7, 1985

Mark Weston
City of Helena
316 N. Park
Helena, MT 59601

Dear Mark:

As you requested, this letter is the department's position statement on the City of Helena's program of collecting and burning used oil. This position is based on proposed EPA regulations and is subject to change depending upon the final adopted federal regulation. The regulation in question is 40 CFR 266.40-43.

40 CFR 266.40(e) stipulates that used oil fuel is subject to control under the proposed regulation only if it exceeds certain allowable levels specified in that section. Those specifications are:

Constituent	Allowable Level
Arsenic	5 ppm
Cadmium	2 ppm
Chromium	10 ppm
Lead	10-100 ppm
PCBs	50 ppm
Flash Point	100°F

If the used oil fuel collected by the city exceeds the allowable levels, it is termed "off-specification" and is subject to the following requirements. 40 CFR 266.41(b) states that off-specification used oil fuel may be burned for energy recovery in industrial furnaces, utility boilers, industrial boilers and, under certain conditions, used oil-fired space heaters. In addition, 40 CFR 266.42(b)(2) stipulates that generators must notify EPA of their location and general description of activities, and, upon notification, an EPA identification number will be issued to the generator.

Under your proposed program, waste oil would be collected from city residents at the landfill, stored in an underground tank, and then periodically shipped to the city shop where the waste oil would be burned for energy recovery in a space heater. 40 CFR 266.41(b)(4) stipulates that off specification used oil fuel may be burned in a used oil-fired space heater only if the heater has a maximum capacity of not more than 0.5 million BTU per hour, the heater is vented to the atmosphere and the heater burns only used oil that the owner/operator generates on-site. Because the

city will be collecting used oil generated by other persons, if the used oil were to exceed the proposed allowable levels, then the city would not be allowed to burn that used oil in its shop space heater.

If the city proposes to pursue the waste oil project, this office is making the following recommendations. That the city provide supervision over the used oil collection point to insure that only used crankcase oil from private citizens is accepted. Secondly, the city will have to periodically monitor the used oil collected to determine its specification. We suggest that as the collection tank reaches capacity, a representative sample or samples be pulled and analyzed for constituents found in 40 CFR 266.40(e).

We are very encouraged by the city's desire to provide a useful recycling service to its citizens. However, I must caution you that there are certain inherent risks in accepting wastes that may turn out to be regulated under the hazardous waste program. Currently, used oil that would fail the proposed specification levels may still be recycled by other means. However, EPA is required during the next year and a half to determine the status of used oil as a hazardous waste and to promulgate regulations controlling its disposition. This development could result in the city's project being regulated by the state hazardous waste program in the relatively near future.

I hope this letter addresses the city's concerns over the proposed project. If you have further questions, please call or write.

Sincerely,

William J. Potts
Solid and Hazardous Waste Bureau

jg

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

March 14, 1985

Mark Weston
City Sanitation/
Wastewater Engineer
City of Helena
City-County Building
316 North Park Avenue
Helena, MT 59623

Dear Mark:

We have been contacted by Fritz Zettel of the Helena Fire Department concerning a small amount (estimated at less than one kilogram) of toluidine waste from the Carroll College Chemistry Department.

Toluidine is not a listed hazardous waste, nor does its flash point of 85°C qualify it as an ignitable hazardous waste. It is therefore perfectly acceptable for disposal in the city landfill. Since the material data sheet does show toluidine to be toxic, the waste should be handled carefully and buried immediately upon its receipt at the landfill.

Sincerely,

Roger

ROGER C. THORVILSON
Solid and Hazardous Waste Bureau

RCT:vc
cc: Fritz Zettel, Hazardous Materials Specialist, Fire Prevention Bureau, Helena Fire Department, 316 N. Park Avenue, Helena, MT

Y.C-Helena

In the District Court of the First Judicial District of the State of Montana, In and For the County of Lewis and Clark

RICHARD LARSON and RONALD ROBINSON

Plaintiff.

Against

THE CITY OF HELENA, MONTANA

Defendant.

File No. 49317

Subpoena

THE STATE OF MONTANA SENDS GREETING TO:

VIC ANDERSON

We Command You That All and singular, business and excuses being laid aside, you appear and attend before our District Court of the First Judicial District of the State of Montana, in and for the County of Lewis and Clark, at a term of said Court to be held at the Court House, in the County of Lewis and Clark on the 6th day of March, A.D. 1985, at 9:00 o'clock a. M., then and there to testify in the above entitled action now pending in said District Court on the part of plaintiffs; and disobedience will be punished as a contempt by said Court.

Witness, Hon. Henry Loble, Judge of the First Judicial District, at the Court House in the County of Lewis and Clark, the Seal of said Court this 4th day of March, A.D. 19 85.

Attest: My hand and the Seal of said Court the day and year last above written:

(SEAL)

Clara Gilreath, Clerk

By JUDY HARRIS

Deputy Clerk.

KELLER, REYNOLDS, DRAKE,
STERNHAGEN & JOHNSON
38 South Last Chance Gulch
Helena, Montana 59601
Attorneys for Plaintiffs

L&C-Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

[Telephone: 444-2821]

HELENA, MONTANA 59620

January 31, 1985

Mr. Mark Weston
Wastewater/Sanitation Engineer
City of Helena
316 N. Park Avenue
Helena, MT 59623

Dear Mark:

Thank you for accompanying Joel King, John Geach and me when we sampled the methane gas monitoring wells at the City of Helena landfill on January 29, 1985.

We recorded the following readings:

Location	% L.E.L.	% Gas
Well #1	0.0	0.0
Well #2	0.0	0.0
Well #3	0.0	0.0
Well #4	200.0	10.0
Well #5	0.0	0.0
Well #6	0.0	0.0
Well #7	0.0	0.0
Armory Basement	0.0	0.0
YMCA Basement	0.0	0.0

As in the past, it appears that Well #4 is high for two reasons--its location right in unburned solid waste and the frozen ground at the surface.

We would agree with your plan to continue sampling monthly, especially during the winter months. While we only plan to do random sampling, we would be happy to assist at any time. We would also appreciate copies of your monthly test records for our files.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

PROGRAM DIRECTOR DIVISION

STATE OF MONTANA

[Telephone 444-2821]

January 31, 1981

Mr. Mark Baxter
Wastewater/Sanitation Engineer
City of Helena
316 N. Park Avenue
Helena, MT 59601

Dear Mark:

Thank you for accompanying Joel King, Water/Sewer Lab, on when we sampled the Helena Gas Company-Helena Works, at the City of Helena January 21, 1981.

We received the following results:

Location	T.C.B.	% Gas
Well #1	0.0	0.0
Well #2	0.0	0.0
Well #7	0.0	0.0
Well #4	200.0	10.0
Well #5	0.0	0.0
Well #6	0.0	0.0
Well #7	0.0	0.0
Priority Easement	0.0	0.0
VFDA Easement	0.0	0.0

As in the past, it appears that Well #4 is high for the reason--its location right in submerged soils waste and the fission ground or the soil-fuse.

We would agree with your plan to continue sampling monthly, especially during the wlarm months. While we only plan to do random sampling, we would be happy to monitor at any time. We would also appreciate copies of your monthly test results for our files.

Sincerely,

If you have any questions or we may be of additional assistance, please contact us.

Sincerely,

James E. Leiter
Solid and Hazardous Waste Bureau

JEL:ao

cc: Bob Knudsen, Helena Fire Dept., Civic Center, Helena

LSC - Helena landfill

LAW OFFICES

Keller, Reynolds, Drake, Sternhagen and Johnson

PAUL T. KELLER
MELVIN E. MAGNUSON (1911-1967)
PAUL F. REYNOLDS
GLEN L. DRAKE
P. KEITH KELLER
WILLIAM G. STERNHAGEN
THOMAS Q. JOHNSON
RICHARD E. GILLESPIE
G. CURTIS DRAKE

38 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601
TELEPHONE (406) 442-0230

January 31, 1985

Mr. Vic Anderson
Solid Waste Bureau
Department of Health
State of Montana
Helena, Montana 59620

Dear Vic:

Re: Larson and Robinson vs. City of Helena

This is to advise that trial in this action is now set for March 6, 1985. I will contact you ten days or so in advance of the trial to arrange your attendance.

Very truly yours,

P. Keith Keller

PKK:ps

LAW OFFICES

Keller, Reynolds, Drake,
Sternhagen and Johnson

PAUL T. KELLER
MELVIN E. MADNUSON (1901-1967)
PAUL F. REYNOLDS
GLEN L. DRAKE
R. KEITH KELLER
WILLIAM O. STERNHAGEN
THOMAS O. JOHNSON
RICHARD E. GILLESPIE
G. CURTIS DRAKE

36 SOUTH EAST GRANDE GULCH
HELENA, MONTANA 59601
TELEPHONE (406) 442-0320

January 31, 1985

Mr. Vic Anderson
Solid Waste Bureau
Department of Health
State of Montana
Helena, Montana 59620

Dear Vic:

Re: Larson and Robinson vs. City of Helena

This is to advise that trial in this action is now set for March 6, 1985. I will contact you ten days or so in advance of the trial to arrange your attendance.

Very truly yours,

P. Keith Keller

PKK:ps

L&C - Hel.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

December 21, 1984

Mark Weston
Sewer Department Superintendent
316 North Park Avenue
Helena, MT 59623

Re: MPDES Permit No. MT-0022641
Sludge disposal

Dear Mark:

Sludge disposal is an integral part of wastewater treatment. Part II Section A.6 of the above-referenced permit concerning removed substances states: "Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewater shall be disposed of in a manner such as to prevent any pollutant from such materials entering state waters."

In order for the department to determine compliance with this section of the permit we must receive additional monthly information on your sludge disposal practice. I have enclosed a supply of "Sludge Application Monthly Summary" forms. These forms are to be filled out by you and submitted each month along with your discharge monitoring report forms.

As you can see there is a space on the form for reporting concentrations of total kjeldahl nitrogen, total ammonia, nitrogen, and total nitrate nitrogen in the sludge. These analyses should be performed monthly on the sludge being land applied. Percent solids should also be reported.

In addition, on a semi-annually basis (once at the start of the land application season and once at the end) heavy metal analysis of sludge should be done. These analyses should include total cadmium, chromium, copper, lead, nickel, and zinc.

If you have any questions regarding this matter, feel free to contact me at this office (444-2406). Thank you for your cooperation with MPDES.

Sincerely yours,

Richard J. Pedersen
Environmental Specialist
Water Quality Bureau
Environmental Sciences Division

RJP:ew
Encl.
cc: Const. Grants
Jim Leiter, SWB

L&C - Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

Telephone: 444-2821

HELENA, MONTANA 59620

December 11, 1984

Mr. Richard Nisbet, P.E.
Dept. of Public Works
City of Helena
City-County Building
Helena, MT 59627

Dear Dick,

On December 3, 1984, Bob Knudsen, Helena Fire Department, and I checked the gas monitoring wells at the Helena landfill. Both the fire department and our office used a Gastech Model NP-204 explosimeter. At the time of the investigation, we checked gas wells #1 through #5 and the YMCA and Armory basements. All readings were "0" with the exception of wells number 4 and 5, in which I recorded 6% and 5% L.E.L. (lower explosive limit) respectively, well below concentrations which could be dangerous. Most importantly, neither the YMCA nor Armory showed any concentrations of explosive gasses.

Due to the fact that two wells near the building do show some concentration of gas, to be expected near landfills, we would recommend that monitoring be regularly conducted at the gas wells and accurate records be maintained. In addition, since the expansion area of the landfill borders other private property, it is our recommendation that the city hire a consultant to thoroughly evaluate any possible impact from landfill gas to adjacent properties in the future. We'd be happy to discuss this recommendation further with you at any time.

If you have questions or we may be of further assistance, please contact us.

Sincerely,

James E. Leiter
Solid Waste Management Bureau

JEL:ao

cc: Mark Weston, City Wastewater/Sanitation Engineer, City-Co. Bldg., Helena
Bob Knudsen, Helena Fire Dept., Civic Center, Helena

City of Helena Landfill

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

October 15, 1984

Larry Ellis
Acting Sanitation Director
City of Helena
316 N. Park Avenue
Helena, MT 59627

Dear Larry,

Mr. Floyd Bolz from the Fort Harrison VA Hospital, contacted our office to inquire about a proper disposal method for chemotherapy wastes generated at the hospital. As part of regular pharmacy procedures, chemical residues produced during laboratory formulation and mixing operations, and gloves or aprons contaminated with chemical residues are collected and stored for later disposal. The VA has accumulated approximately 150 lbs. of this material. A list of the chemicals is attached for your information.

Some of these chemicals are classified as hazardous waste and therefore disposal is subject to hazardous waste regulations. Because the quantity of waste is under the 2,200 lbs. small quantity limit, the material can legally be disposed in an approved sanitary landfill. It is my opinion that the potential for this material to produce a toxic leachate is very low and thus the city of Helena can accept this material for disposal at the sanitary landfill. The waste should be incorporated in with the regular refuse and covered immediately.

Thank you for your cooperation. If you have any questions, please feel free to contact me.

Sincerely,

John L. Arrigo

JOHN L. ARRIGO
Solid Waste Management Bureau
Telephone: (406) 444-2821

JLA:vc
Enclosures
cc: Floyd Bolz, Safety Specialist, VA Center, Fort Harrison, MT 59636

Hazardous Waste N[illegible]

[illegible]ER CHEMOTHERAPEUTIC AGENTS

Coquinell Bldg B-201

Generic Name		Brand Name	Manufacturer
Asparaginase		Elspar	MSD
Azathioprine		Imuran	BW
Bleomycin		Blenoxane	Bristol
Busulfan		Myleran	BW
Carmustine		BiCNU	Bristol
Chlorambucil	U035	Leukeran	BW
Cis-Platinum		Platinol	Bristol
Cyclophosphamide		Cytoxan; Neosar	Mead Johnson;Adri.
Cytarbine		Cytosar-U	Upjohn
Dacarbazine		DTIC-Dome	Miles
Dactinomycin		Cosmegen	MSD
Daunorubicin		Cerubidine	Ives
Doxorubicin		Adriamycin	Adria
Dromostanolone		Drolban	Lilly
Floxuridine		FUDR	Roche
Fluorouracil		Adrucil	Adria
Hydroxyurea		Hydrea	Squibb
Lomustine		CeeNU	Bristol
Mechlorethamine		Mustargen	MSD
Megestrol		Megace; Pallace	Mead Johnson;Brist
Melphalan		Alkeran	BW
Mercaptopurine		Purinethol	BW
Methotrexate			Ledule
Mitomycin	U010	Mutamycin	Bristol
Mitotane		Lysodren	Bristol
Pipobroman		Vercyte	Abbott
Plicamycin (Mithramycin)		Mithracin	Miles
Procarbazine		Matulane	Roche
Semustine		Methyl CCNU	Bristol
Thioguanine			BW
Thiotepa	P109		Lederle
Uracil Mustard	U237		Upjohn
Vinblastine		Velban	Lilly
Vincristine		Oncovin	Lilly

✓ = Stocked here

items checked are what we use.

SRC

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

Telephone: 406-444-2821

HELENA, MONTANA 59620

September 20, 1984

Mr. Richard E. Wegner, P.E.
Chief, Materials Bureau
Department of Highways
2701 Prospect Avenue
Helena, MT 59620

Dear Mr. Wegner:

Re: Request for Approval of Disposal of Asphaltic Samples at Helena Landfill

In regard to your request for a letter of approval, it would be helpful if we could get a list and description of the specific materials you desire to take to the landfill.

Due to the permeable nature of the soils on-site and proximity to ground water, we have an exclusion on the landfill license for liquid and semi-liquid wastes. Some exceptions can be made, depending on method of disposal and exact nature of the waste.

Gene Danicich recently brought in samples of the material described in your letter of September 14, 1984. These materials are the ones for which you've requested an approval for disposal at the Helena landfill.

In the quantities you mentioned (up to 200 quarts a week), the materials should not present a problem at the landfill. The department, therefore, would have no reservations if the City of Helena wants to accept the wastes for landfilling.

If you have any questions, please contact us.

Sincerely,

James E. Leiter
Solid Waste Management Bureau

JEL:ao

cc: Larry Ellis, Division Supervisor, Public Works Dept., City of Helena, City-County Bldg., Helena
Gene Danicich, Dept. of Highways

FORM 4 A

D N

INTER-DEPARTMENTAL MEMORANDUM

DEPARTMENT OF HIGHWAYS

To Mr. James Leiter

From Mr. Eugene M. Danicich EMD

Subject: Disposal of Bituminous Material

Date September 20, 1984

In our phone conversation of August 20, 1984; you requested that we define the Bituminous Material to be disposed of at the Helena Landfill.

Listed below are percentages and materials to be disposed of on a weekly basis:

70% Asphalt Cement (Penetration Grade) Very thick, barely flows, hardens in air

25% Emulsified Asphalt (CRS-2; SS-1) watery solution of water & asphalt

4% Cut Back Adhesives (MC-70; MC-250; MC-800) FP ≈ 180°. Higher # more viscous

1% Bituminous Coating Material and Crack Sealer

At times about 10 quarts of Traffic Paint will also be disposed of.

→ FP Room Temp to 100°

cc Gene McMahon

Avoid Verbal Instructions

INTER-DEPARTMENTAL MEMORANDUM

DEPARTMENT OF HIGHWAYS

To Mr. James Leitzt

From Mr. Eugene M. Dunlaick

Subject: Disposal of Bituminous Material

Date September 20, 1954

In our phone conversation of August 20, 1954; you requested that we define the Bituminous Material to be disposed of at the Helena Landfill.

Listed below are percentages and materials to be disposed of on a weekly basis:

70% Asphalt Cement (Penetration Grade)

25% Emulsified Asphalt (CSS-2; SS-1)

4% Cut Back Adhesives (MC-70; RC-250; RC-800)

1% Bituminous Coating Material and Crack Sealer

At times about 10 quarts of Traffic Paint will also be disposed of.

cc Gene Wilkins

Avoid Verbal Instructions

DEPARTMENT OF HIGHWAYS

TED SCHWINDEN, GOVERNOR

2701 PROSPECT

STATE OF MONTANA

HELENA, MONTANA 59620

September 14, 1984

Mr. James Leiter
Solid Waste Management Bureau
RM B-201, Cogswell Building
Helena, MT 59620

Dear Mr. Leiter:

The Montana Department of Highways, Materials Bureau requests an authorization from your Department for the disposal of bituminous material samples, at the Helena City landfill.

The approximately amount of waste materials disposed of during the construction season, April to October would be about 200 quarts of asphalt per week.

We would appreciate it if you would notify Mr. Larry Ellis, Sanitation Director, City of Helena on your decision concerning this matter as soon as possible.

If additional information is needed, please advise.

Thanking you for your cooperation in advance.

Sincerely,

Richard E. Wegner

Richard E. Wegner, P.E., Chief
Materials Bureau

REW:EMD:sk:3q

cc: Larry Ellis, Director - Sanitation Department
Gene McMahon
Gene Danicich

RECEIVED

SEP 18 1984

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

DEPARTMENT OF HIGHWAYS

STATE OF MONTANA

September 14, 1984

Mr. James Leiter
Solid Waste Management Bureau
Rm B-201, Cogswell Building
Helena, MT 59620

Dear Mr. Leiter:

The Montana Department of Highways, Materials Bureau requests an authorization from your department for the disposal of bituminous material samples, at the Helena City Landfill.

The approximately amount of waste materials disposed of during the construction season, April to October would be about 200 quarts of asphalt per week.

We would appreciate it if you would notify Mr. Larry Ellis, Sanitation Director, City of Helena on your decision concerning this matter as soon as possible.

If additional information is needed, please advise.

Thanking you for your cooperation in advance.

Sincerely,

Richard E. Wegner, P.E., Chief
Materials Bureau

REW/RED:xx:3d

cc: Larry Ellis, Director - Sanitation Department
Dave McGowan
Gene Daniels

RECEIVED
SEP 18 1984
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

Foundation & Materials Consultants, Inc.

839 Front Street, Helena, Montana 59601

Phone 406/442-0880

Edward A. Nurse, P.E., President

July 12, 1984

Mr. Larry Ellis
City of Helena
316 N Park
Helena, MT 59623

RE: Permeability Tests

Dear Mr. Ellis:

Attached are the results of standard proctors done on samples taken from Benton Ave. The results of permeability tests on the same samples are listed below.

Sample #	Location	Permeability
1	Next to School X-ing sign	4.0×10^{-7} cm/sec
2	Across from shack on #2 tee	non-permeable
3	Across from batch field	1.0×10^{-7} cm/sec

If you have any questions, please call.

Very Truly Yours,

FOUNDATION & MATERIALS CONSULTANTS, INC.

Michael F. Lynch, E.I.T.

Foundation & Materials Consultants, Inc.

829 Front Street, Helena, Montana 59601
Phone 406-442-0880

July 12, 1984

Mr. Larry Ellis
City of Helena
316 N Park
Helena, MT 59623

RE: Permeability Tests

Dear Mr. Ellis:

Attached are the results of standard proctors done on samples taken from Benton Ave. The results of permeability tests, on the same samples are listed below.

Sample #	Location	Permeability
1	Next to School X-ing sign	4.0×10^{-7} cm/sec
2	Across from shack on 22 tee	non-permeable
3	Across from beach field	3.0×10^{-7} cm/sec

If you have any questions, please call.

Very truly Yours,

FOUNDATION & MATERIALS CONSULTANTS, INC.

Michael F. Lynch, E.I.T.

Date 6-6-84

Job No. BENTAN AVE

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: SILT & GRAVEL ACCROSS FROM SHACK ON # 21

Material Mark _____ Classification _____

Source of Material _____

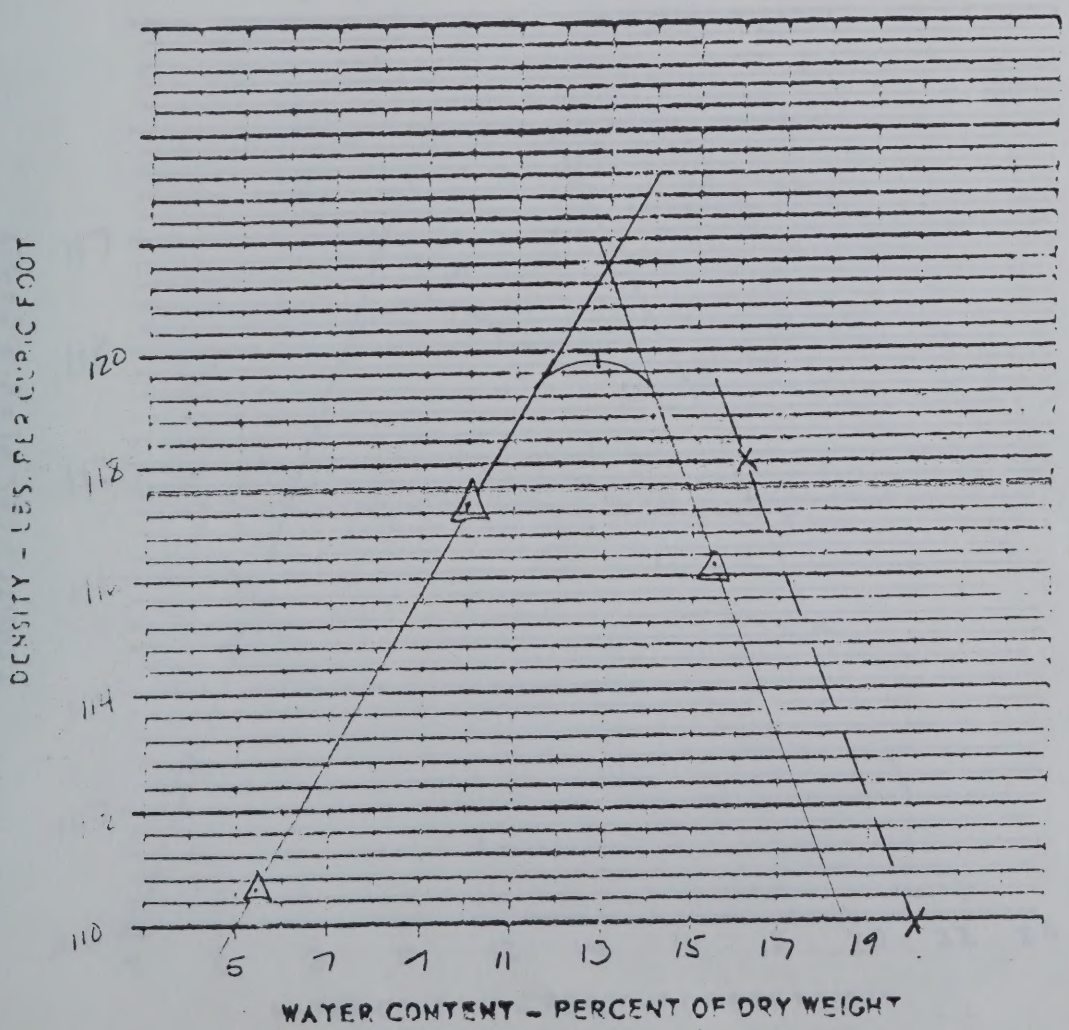
Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity 2.72

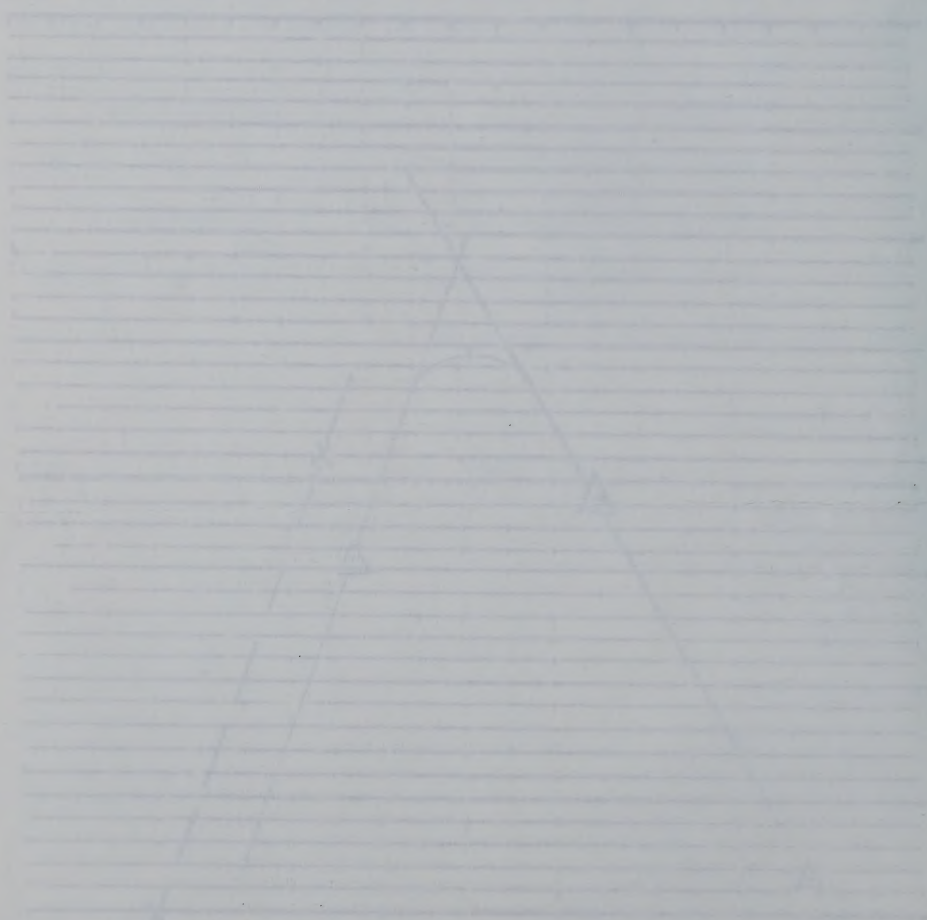
Liquid Limit _____ % Plastic Limit _____ % Plasticity Index _____

B. Test Procedure Used: MINIATURE HARVARD

C. Test Results:

Maximum Dry Density 119.8 PCF Optimum Water Content 12.8 % (at a Wet Density of 135.1 PCF)





Date 6-6-84

Job No. BENTAN AVE

COMPACTION CONTROL REPORT

CITY OF HELENA

1. Laboratory Compaction Test Data

A. Description of Soil: TOP SOIL ACCROSS FROM BATCH FIELD

Material Mark _____ Classification _____

Source of Material _____

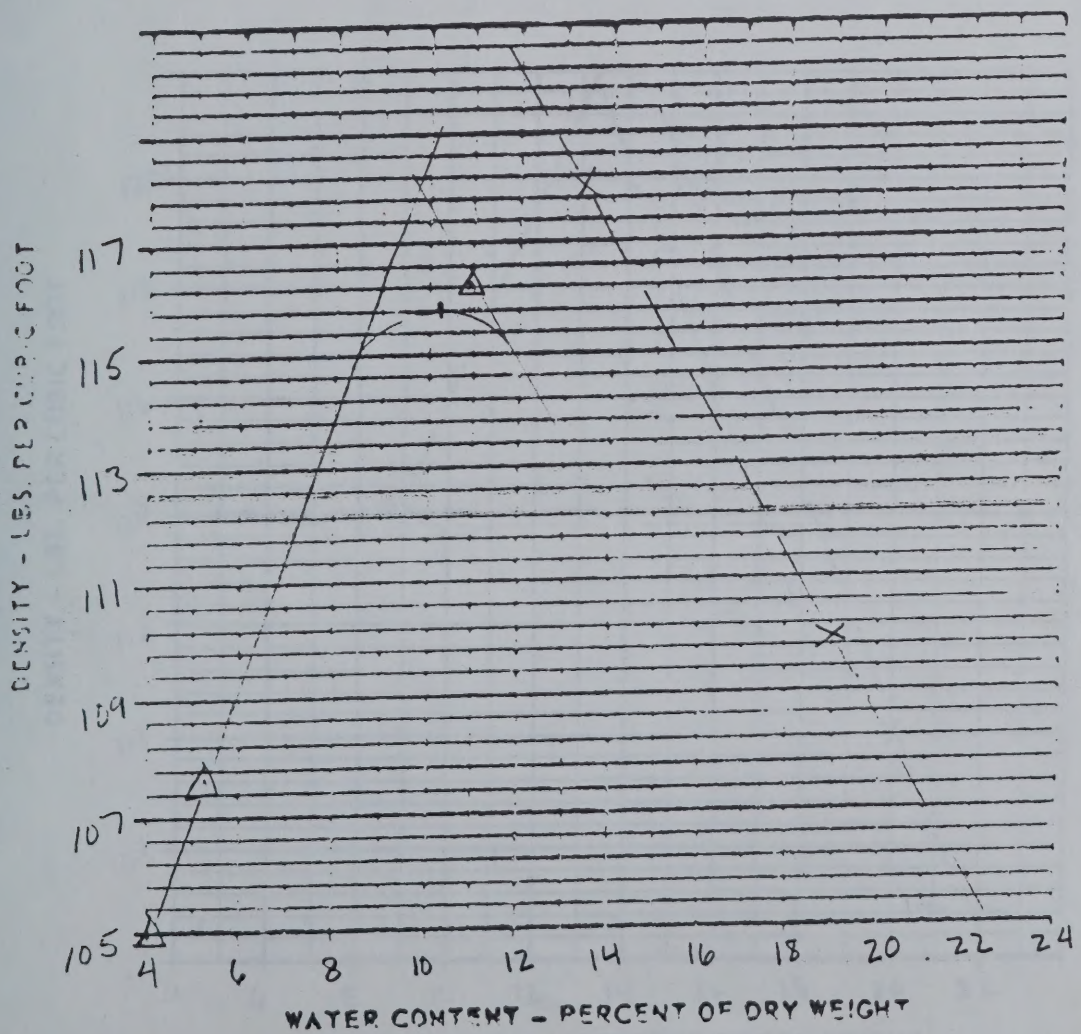
Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity 2.58

Liquid Limit _____ % Plastic Limit _____ % Plasticity Index _____

B. Test Procedure Used: MINIATURE HARVARD

C. Test Results: Optimum Water Content 10.3 %

Maximum Dry Density 115.8 PCF (at a Wet Density of 127.7 PCF)



Date 6-6-84

Job No. BENTAN AVE.

COMPACTION CONTROL REPORT

CITY OF HELENA

1. Laboratory Compaction Test Data

A. Description of Soil: SILT & GRAVEL NEXT TO SCHOOL X-ING SIGN

Material Mark _____ Classification _____

Source of Material _____

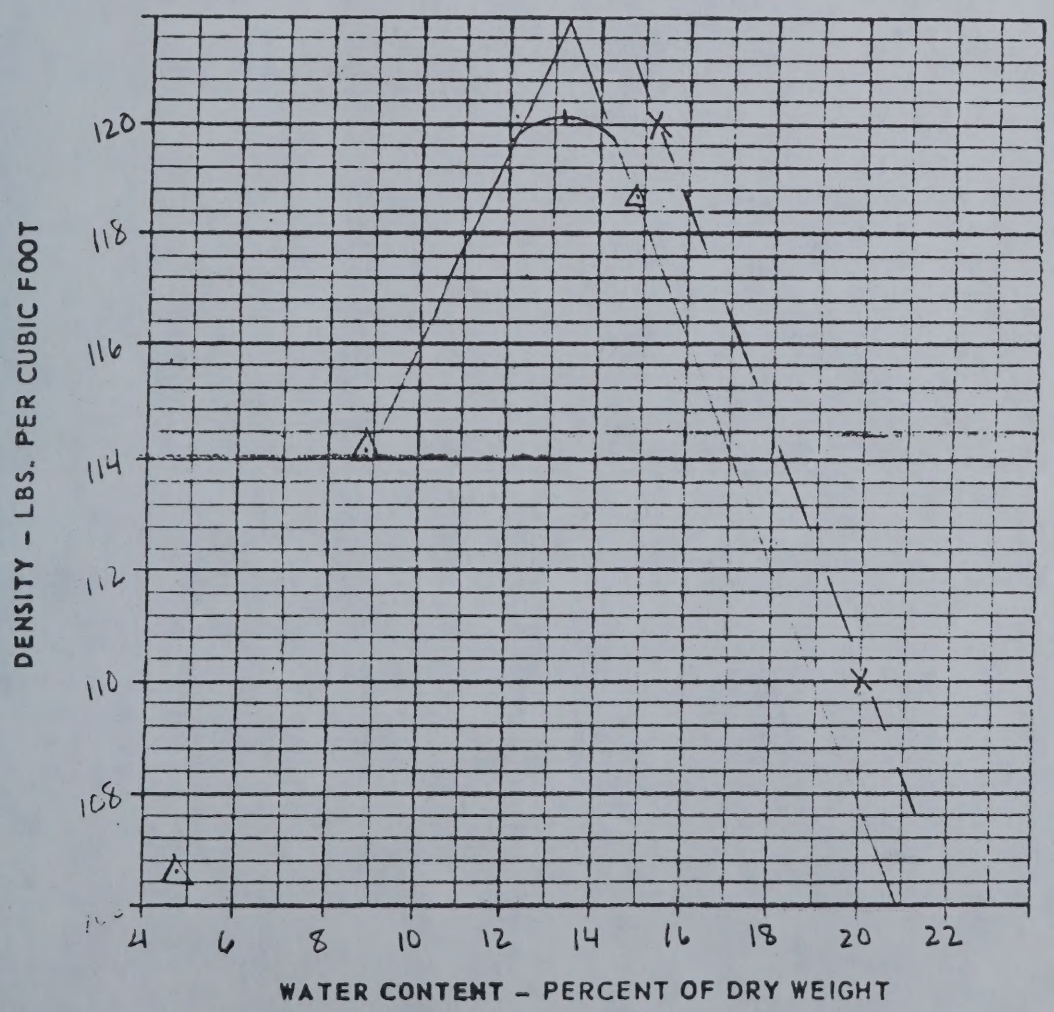
Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity 2.72

Liquid Limit _____ % Plastic Limit _____ % Plasticity Index _____

B. Test Procedure Used: MINIATURE HARVARD

C. Test Results: Optimum Water Content 13.2 %

Maximum Dry Density 122.0 PCF (at a Wet Density of 138.1 PCF)



Office Memorandum

STATE DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

RTE	ACT.	ACC.
HR		5/18/84
UN		5/16
SWB	cc	
LCCo	cc	
TECH	ADM	

John Gesch
Joan Miles, LCCo

TO : Files

DATE: May 16, 1984

FROM : Charles Homer

SUBJECT : Helena Landfill - Wood Waste Pile Open Burn

LCCo Open Burn

The following is a description of the burning of the wood waste pile located at the City of Helena Landfill. The burn occurred on May 8 and 9, 1984. Attached are pictures that were taken during the burn. The pictures follow the same chronological sequence as the text.

At 7:30 a.m. on May 8, 1984, I called the Helena office of the National Weather Service for the day's ventilation forecast. They indicated that dispersion would be good with calm in the morning and increasing winds in the afternoon. They said that they didn't expect any low-level inversions.

After conferring with Warren Norton, I called Larry Ellis, the Acting Sanitation Supervisor for the City of Helena and gave him permission to light the fire. This was approximately 8:00 a.m. City workers ignited the pile almost immediately using drip torches borrowed from the Division of Forestry of the Montana Department of State Lands. The ignition went extremely well. The pile was lit quickly and evenly and soon developed a good convective smoke column.

The pile was burning well at this point with approximately 25-30% opacity. During this period, because of the large convective flow, large particles of ash were carried a substantial distance from the landfill. Most of the complaints from this burn concerned people's cars and other belongings being coated with ash.

By 10:00 a.m. the pile was beginning to smoke quite a lot. The opacity was about 80%+. The smoke was also being held in the valley by an unanticipated inversion. The valley floor and Helena itself were not being influenced, but the Dry Gulch-Unionville areas were being impacted.

The inversion began breaking up around 11:30 a.m. At that time, we began to get an east wind. Because of sufficient plume rise, most of Helena was still not affected. Most of the impact centered in the area west of Helena. The smoke was noticeable from the west edge of town to the top of McDonald Pass.

The city began to extinguish the fire at approximately 1:30 p.m. using a bulldozer and front end loader to bury the fire and a City of Helena fire engine to help extinguish what flames remained. Due to the late start and mechanical problems with the fire truck, the fire was not extinguished by 6:00 p.m. The pile was allowed to smolder overnight.

In the evening, the wind shifted to a northeast wind. This wind direction continued throughout the night and into the afternoon of May 9. During this time there was virtually no plume rise. The smoke dispersed along the ground through a predominantly commercial area along Cedar Street.

The fire was extinguished by 6:00 p.m. on May 9, although some hot spots flared up later that evening.

Even though the impacts were mostly slight and temporary, several areas around the Helena valley were affected. It seems clear now that although the burn went fairly well, the Helena landfill is not an appropriate place to burn. In the future, any excess material that the City wishes to burn should probably be hauled to a more remote site such as the Lewis and Clark County Landfill near the Scratch Gravel Hills. Also, the material should not be burned in quantities this large. A smaller pile would be easier to control and extinguish.

CH:kh

RTE.	ACT.	ACC.
HR	Inf	5/4/84
HK	S	5/3/84
WN		5/2
CH	S	5-2
SUB	CC	
	FILE	
TECH	ADM.	ENF.

John Geach - SUB

Lewis + Clark Co

May 1, 1984

Larry Ellis
Division Supervisor
Public Works Department
City of Helena
316 North Park Avenue
Helena, Montana 59623

Dear Mr. Ellis:

RE: Permit #LF-54

Your landfill open burning permit application to burn untreated wood waste has been approved and given permit #LF-54. It is subject to the following conditions:

1. Burning will take place on days of good ventilation. Call 444-3454 for the ventilation forecase prior to ignition. The permission to burn will be given by 8:15 a.m. on the day of the burn if the ventilation is adequate.

2. Adequate fire control will be present at all times and is the responsibility of the person or persons igniting the fire.

3. The fire must be completely extinguished at the end of the day. No smoking piles will be allowed overnight.

4. Only untreated wood waste may be burned. Prohibited items must be removed from the pile prior to ignition. The pile shall be free of dirt and contaminants which retard combustion.

5. This permit is good for a single burn only. The actual burn date is left up to the landfill operator; however, you must notify the Air Quality Bureau of the date selected (phone 444-3454). This may be done at the same time you call for the ventilation forecast.

6. Adjacent residents and the local fire authority must be notified 3 days prior to ignition. This may be done in either the local print or broadcast media.

7. Ash from the fire shall not be buried in the same trench used for your operating landfill. This is to prevent underground trash fires from becoming a problem in the landfill itself.

8. Any public nuisance resulting from open burning at a licensed landfill will be cause for revocation of this permit.

9. The fire must be extinguished immediately if the Air Quality Bureau determines it is causing a public nuisance.

10. The issuance of this permit does not release the landfill operator from any liability for any impacts resulting from this burn.

For the Department,

Harold W. Robbins
Chief
Air Quality Bureau

HWR/dw/60

General

A. Inspection

The recipient shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, and otherwise conducting all necessary functions related to this permit.

B. Waiver

The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if the recipient fails to appeal as indicated below.

C. Compliance with Statutes and Regulations

Specific listing of requirements, limitations, and conditions contained herein does not relieve the applicant from compliance with all applicable statutes and administrative regulations including amendments thereto, nor waive the right of the Department to require compliance with all applicable statutes and administrative regulations, including amendments thereto.

D. Enforcement

Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401 MCA.

LANDFILL OPEN BURNING PERMIT APPLICATION

RTE.	ACT.	ACC.
CH		
	FILE	
TECH	ADM	ENF

1. Name of Applicant: CITY OF HELENA

   Landfill License Number: 90

2. Address: 316 NORTH PARK AVENUE, HELENA, MONTANA

3. Name of Responsible Contact: LARRY ELLIS, ACTING DIVISION SUPERVISOR

   Telephone: 442-9920 EXT. 421

4. Area and Location of Burn PHASE III - HELENA MUNICIPAL LANDFILL

5. Date of Burn MAY 8, 1984 Time Start 8:00 A.M. Time Stop 5:00 P.M.

5. Material to be burned:

   A. Type PORTIONS OF TREES AND LIMBS FROM STORM - FALL, 1983

   B. Quantity 40,000 - 50,000 CUBIC YARDS - (APPROXIMATELY 5,000 TONS)

Alternatives to open burning investigated	Yes	No
A. Landfilling	X	
B. Air Curtain destructor		
C. Chipping		
D. Give away for firewood		
E. Other		

8. Discussion of economic hardship to site owner/operator if permit is denied. (Attach additional sheet, if necessary) Disposal & Landfill costs - Approximately $30,000

9. Adjacent land uses (i.e. wheat field forest, etc.) Landfill on South, golf course on North, Carroll College on West, Montana Power on East.

10. Distance and Direction to nearest residences 1/2 mile - North (Clover View)

11. Evidence of Fire Control: Name of Individual Norm Gray - Fire Chief

    Fire Department: Helena Fire Department

    List of onsite fire control equipment and personnel: 1 Pumper - Standby Fire Dept. Personnel

12. How wood wastes were disposed of in the past: Have not had this quantity

13. Wood waste pile inspected and determined to contain only untreated wood wastes.

    Sanitarian Will Selser Date Inspected 4-24-84

14. Have adjacent landowners been notified of proposed burn?

    Yes _____ No XX (Will be before burn)

APR 2 1984

Air Quality Bureau
Dept. of Health & Env. Sciences
Cogswell Building
Helena, MT 59620
444-3454

EXAMPLES OF CONDITIONS OF BURNING PERMIT

(Each permit will have specific conditions that are tailored to individual needs.)

1. Burning will take place only on days of good ventilation:

   Call: 444-3454 for ventilation forecast.

2. Adequate fire control present at all times.

3. Fire must be completely extinguished at end of each day. No smoldering piles.

4. Wood must be untreated and free of dirt or any contaminants and must be uncompacted.

5. Permit good for single burn only. A new permit must be obtained for each burn.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

Telephone: (406)444-2821

HELENA, MONTANA 59620

March 15, 1984

Mr. David Crawford
Capital Ford Body & Paint
1315 Prospect
Helena, MT 59601

Dear Mr. Crawford:

On the morning of Wednesday, March 14, we met to discuss the handling and disposal of spent paint thinner from Capital Ford's body and paint operation. Active ingredients in the thinner are xytol, toluol (synonyms for xylene and toluene) and alcohol. When spent, these materials are classified as F003 and F005 hazardous wastes from non-specific sources (40 CFR 261.31). Currently on site you have approximately one hundred gallons of spent thinner in sixteen-gallon drums. You also mentioned that the body shop generates approximately thirty gallons of waste thinner per month.

Under the requirements of ARM 16.44.305, small quantities of hazardous waste (less than 1,000 kg./2,200 lb.) can legally be disposed in licensed Class II sanitary landfill. I spoke with Dick Nisbet, Director of Public Works, City of Helena, and he indicated that the city would be willing to accept the wastes if the volume was under the small quantity limit. It is my opinion that the spent paint thinner can legally be disposed in the Helena landfill provided you undertake the following precautions:

1) Waste paint thinner should be mixed with an absorbent such as floor-dry or vermiculite to "tie up" any free liquids, placed in the original sixteen-gallon containers and sealed.

2) The landfill operator should be contacted to arrange for the disposal of current and future inventories of small quantity hazardous wastes. The drums of waste should be deposited in the landfill in such a manner to reduce exposure to the public and landfill personnel and to eliminate hazards associated with fire and explosion.

3) It is my suggestion that in the future spent paint thinner be removed from the body shop on a regular (monthly?) basis to reduce fire hazards at the shop and to decrease the handling required at the landfill.

If you have any questions or comments, please contact me. Thank you for your cooperation.

Sincerely,

John L. Arrigo
Solid Waste Management Bureau

JLA:ao

cc: Larry Ellis, City of Helena, 316 N. Park, Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

STATE OF MONTANA

HELENA, MONTANA 59620

January 25, 1984

Mr. Richard Nisbet
Director of Public Works
City of Helena
City-County Administration Bldg.
Helena, MT 59623

Re: Handling and Disposal of Grit and Primary Screenings - Helena Wastewater Treatment Plant

Dear Dick:

Thanks for meeting with us to discuss disposal of screenings and grit from the wastewater plant.

While I would recommend that this material be buried at the Helena landfill, I'm afraid I don't have any specific recommendations for the best method for handling and transporting the material to the site. It may be possible to engineer a disposal site at the plant or near the plant, but I doubt that the cost of operating a separate disposal landfill at the plant would be very cost effective. The material by itself, without the "bulking" capacity of household refuse, would be very difficult to bury without large quantities of soil cover. Naturally, as much moisture as possible must be drained from the material before delivery to any disposal site.

While this material does have some unique qualities, I don't think disposal of small quantities at the landfill will present many problems different from handling the dewatered sludge when the filter press is placed into service. We would be glad to assist in developing the best method for handling the waste at the landfill if that is your ultimate choice for disposal.

Due to the fact that the slit trenches at the treatment plant site are not approvable and may lead to worsened groundwater contamination in the area, we would like to see the city develop an alternate plan within the next sixty days.

Again, if we may be of service, please contact us.

Sincerely,

JAMES E. LEITER
Solid Waste Management Bureau
Telephone: (406) 444-2821

JEL:vc
cc: Mark Weston, Water Quality Bureau, DHES
Will Selser, City-County Health Dept.

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

TED SCHWINDEN, GOVERNOR

STATE OF MONTANA

COGSWELL BUILDING

HELENA, MONTANA 59620

MEMORANDUM

TO: Dave Ashley, Deputy Director, Department of Administration

FROM: VA Vic Andersen, Solid Waste Management Bureau

DATE: September 29, 1983

SUBJECT: Groundwater Monitoring Site for Helena City Landfill

DHES is requiring the City of Helena to install groundwater monitoring wells in and around the city's landfill located east and north of Carroll College. These wells will be used to obtain groundwater samples which will be tested to determine any adverse impacts caused by leachates from the landfill.

As a part of the monitoring design, the city's consultant has identified an area for the background well that is owned by the state and is immediately south of the old liquor warehouse. More specifically, the area is between the "The Printers" parking lot (on the south) and the south edge of the state parking lot adjacent to the old liquor warehouse. The area is unpaved, grass-covered, with two large cottonwood trees on the upper south side. The attached map and photos should help with the exact location.

We're asking for permission to drill a well at the above-described location. The long-term physical changes will be a small diameter PVC pipe sticking two to three feet above the ground and some type of guardrail around it to prevent the well pipe from being broken off accidentally. The well will be the property of the state. If at some future date construction necessitates destruction of the well, we ask that DHES be notified so that an alternate background well can be located.

If you have any questions regarding this request, please contact me at 449-2821.

10/4/83
Jerry - NO Problem
approved -
DAB

VRA:ao

Attachments

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

STATE OF MONTANA

TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING
HELENA, MONTANA 59620

RECEIVED
SEP 1983
DEPT. OF ADMINISTRATION
DIRECTORS OFFICE

MEMORANDUM

TO: Dave Bailey, Deputy Director, Department of Administration

FROM: Vic Anderson, Solid Waste Management Bureau

DATE: September 29, 1983

SUBJECT: Groundwater Monitoring Site for Helena City Landfill

DHES is requesting the City of Helena to install groundwater monitoring wells in and around the city's landfill located east and north of Ferrell Gulch. These wells will be used to obtain groundwater samples which will be tested to determine any adverse impacts caused by leachates from the landfill.

As a part of the monitoring design, the city's consultant has identified an area for the location and well that is owned by the City and is immediately south of the old liquor warehouse. More specifically, the area is between the "The Ritzers" parking lot (on the south) and the south side of the state parking lot adjacent to the old liquor warehouse. The area is unpaved, grass-covered, with one large cottonwood tree on the upper south side. The attached map and photos should help with the exact location.

We're asking for permission to drill a well at the above-described location. The long-term physical changes will be a small diameter PVC pipe sticking two to three feet above the ground and some type of manhole around it to protect the well pipe from being broken off accidentally. The well will be the property of the state. If at some future date construction necessitates destruction of the well, we ask that DHES be notified so that an alternate background well can be located.

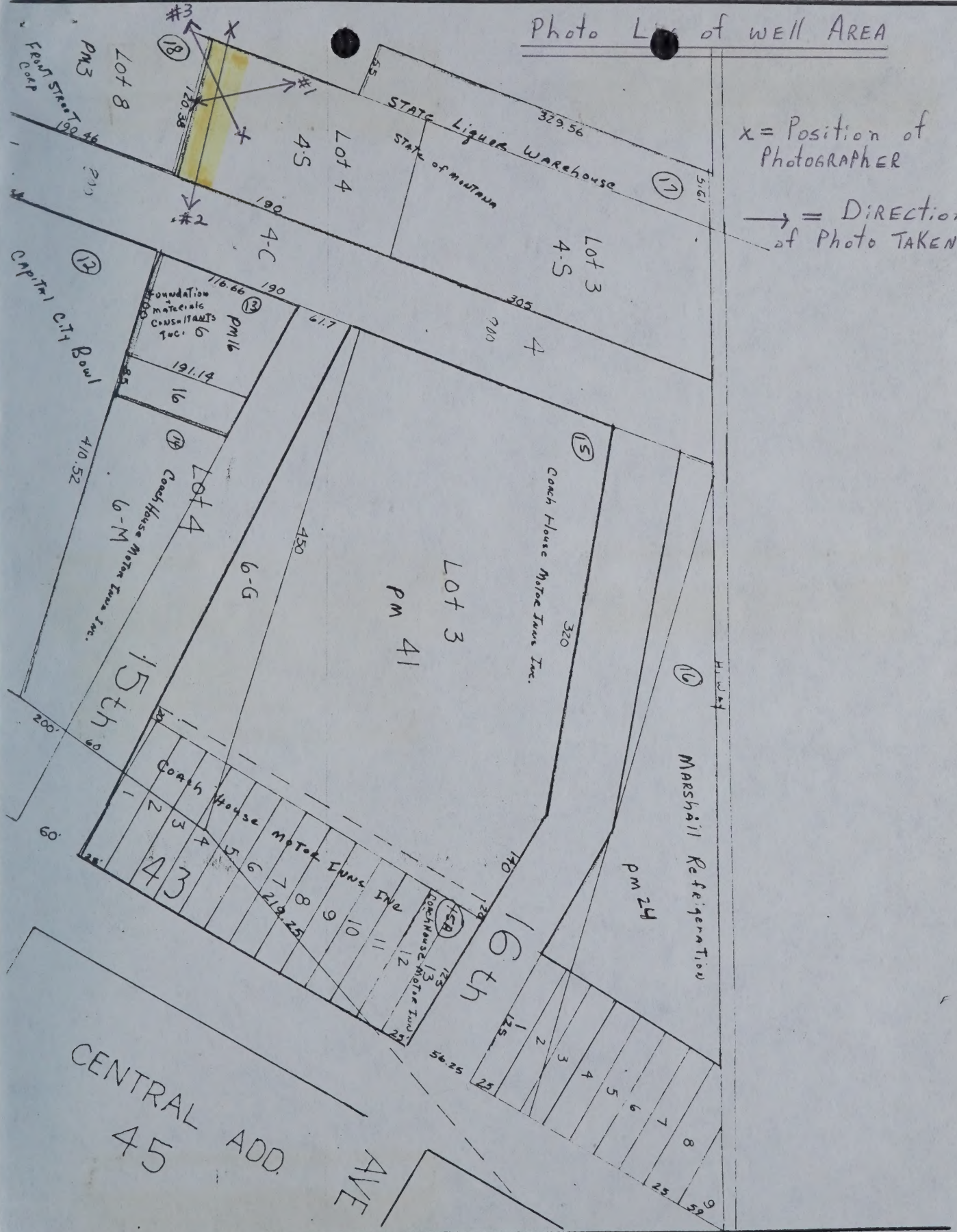
If you have any questions regarding this request, please contact me at 449-2821.

VCA:ar

Attachments


PROPOSED WELL LOCATION
GREEN shaded AREA is APPROX. Location OF GRASSY AREA At South END of PARKING Lot
STATE Liquor WAREHOUSE
STATE of MONTANA
Lot 8
PM3
FRONT STREET CORP
Lot 4
4-S
Lot 3
4-S
4-C
Foundation & Materials CONSULTANTS INC.
PM16
6
16
CAPITAL CITY Bowl
Lot 4
6-M
Coach House Motor Inns Inc.
6-G
Lot 3
PM 41
Coach House Motor Inns Inc.
15th
Coach House Motor Inns Inc
43
Rooftop Motor Inn
16th
Marshall Refrigeration
PM 24
CENTRAL ADD.
45
AVE
N

Photo Log of well Area



9/28/83 #1

9/28/83 #2

9/28/83 #3

HELENA BACKGROUND MONITORING WELL LOCATION PHOTOS

LiC - Helena

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU
HELENA, MONTANA

MEMORANDUM

TO: FILES

FROM: Vic Andersen VA

DATE: September 14, 1983

SUBJECT: Small Quantity Hazardous Waste Disposal

On this date Vic Andersen and Bill Potts picked up approximately 4 gallons of spent solvents at the State Historical Society from Brian Cockhill and transported them to the Helena City landfill. There we emptied the solvents onto the surface of the ground on an area approximately 5 feet by 20 feet. The emptied containers were placed in the working face. Prior arrangements with Don Lewis had been made for this disposal. The solvents were used by the Historical Society for paintings restoration and were a mixture of Petroleum Ether, Toluene Naptha solvent, Hexane and Stoddard Solvent.

6-28-83/VA

BACKGROUND

Hazards All landfills produce methane. The generation of methane from solid waste landfills presents a potentially significant hazard to people living in the vicinity of the disposal site. Potential fire, explosion, and asphyxiation hazards are associated with the production of methane gas in landfills. Public safety may be endangered if methane accumulates in combustible or explosive concentrations.

Methane is explosive in concentrations in the atmosphere of between five and fifteen percent (see Figure 2). Concentrations of methane lower than five percent are not enough to support an explosion. Concentrations of methane in the atmosphere higher than fifteen percent mean that too little oxygen is available to support an explosion. The five to fifteen percent range is called the methane flammable envelope (See Figure 13).

Landfill methane is usually produced in concentrations above the explosive range. Landfill methane will always pass through the explosive range when diluted with air. There is usually no explosion when methane concentrations are within the explosive range because of the lack of a flame source (spark, etc.) in the landfill.

Explosions have been known to occur because of landfill methane. Explosions occur most frequently when methane concentrates in poorly ventilated areas. Methane can subterraneously migrate great distances through permeable media - porous soils, trench backfills, utility or drainage corridors - and collect in poorly ventilated structures or storm sewers.

Various site specific conditions will determine the level of the methane explosion hazard. These include the type of landfill cover, type of surrounding soil, amount of methane produced, ambient air temperatures,

BACKGROUND

Hazards. All landfills produce methane. The generation of methane from solid waste landfills presents a potentially significant hazard to people living in the vicinity of the disposal site. Mechanical fire, explosion, and asphyxiation hazards are associated with the production of methane gas in landfills. Public safety can be endangered if methane accumulates in confined spaces or reaches concentrations.

Methane is explosive in concentrations in the atmosphere of between five and fifteen percent (see Figure 3). Concentrations of methane lower than five percent are not considered by regulators as explosive. Concentrations of methane in the atmosphere higher than fifteen percent mean that the little oxygen is not available to support an explosion. The five to fifteen percent range is called the explosive range (see Figure 4).

Landfill methane is generally produced in concentrations above the explosive range. Landfill methane will always pass through the explosive range when diluted with air. There is usually no explosion when methane concentrations are within the explosive range because of the lack of a flame source (spark, etc.) in the landfill.

Explosions have been known to occur because of landfill methane. Incidents occur most frequently when methane concentrations in nearby confined areas, including gas underground, migrate from a stream through permeable media - porous soils, trench backfill, utility or drainage conduits - and collect in poorly ventilated structures or low areas.

Various site specific conditions will determine the level of gas release and the hazard. These include the type of landfill cover, the surrounding soil, amount of methane produced, soil/air temperature,

precipitation and landfill moisture content, air pressure, atmospheric turbulence, and the presences or absence of conduits or barriers (1).

Potential for Methane Migration

Methane will normally migrate upward because of its relatively low density. However, when upward movement is restricted, the gas will tend to migrate laterally along paths of low resistance to a location where upward movement increase the possibility of horizontal migration. Frost or heavy precipitation tend to fill or close the soil voids, causing the soil to become less permeable and increase the potential for lateral gas movement. Layers of clay or other impermeable materials placed near the surface of the landfill or within the landfill will tend to increase lateral gas migration. (4, 7).

The migration of gas beyond the limits of landfills is a common occurrence. Uncontrolled migration of methane gas is capable of producing hazardous conditions in structures, excavations and underground conduits. Gas migration occurs through convection and diffusion. Convection is the movement of gas in response to pressure gradients; diffusion is the movement of gas from areas of higher gas concentration to areas of lower concentrations.

Gas flows through a soil mass in a fashion similar to water movement. Soils having a high void ratio, such as silts and clays, tend to restrict gas migration. The actual amount and extent of gas migration from landfills is largely dependent on the hydrogeologic environment of the site. Landfill constructed in sand and gravel environments have more vertical and lateral movement of gases than landfills built in an impervious soils environment. Since methane is relatively insoluble in water, the presence of ground water significantly decreases gas migration.

precipitation and landfill moisture content, air pressure, atmospheric turbulence, and the presence or absence of conduits or barriers (1).

Pressure for Methane Migration

Methane will normally migrate toward regions of the relatively low density. However, when ground cracks or is saturated, the gas will tend to migrate laterally along paths of low resistance to a location where natural movement increases the probability of horizontal migration. Frost or deep precipitations tend to fill or close the soil voids, rendering the soil to become less permeable and porous. The potential for lateral gas movement. Layers of clay or other impermeable materials placed over the surface of the landfill or within the landfill will tend to increase lateral gas migration. (4, 7)

The migration of gas beyond the limits of landfills is a common occurrence. Theoretical calculation of methane gas is capable of producing hazardous conditions in structures, excavations and underground conduits. Gas migration occurs through crevices and fissures. Consequently the movement of gas in response to pressure gradients differences results above-ground or less from areas of higher gas concentrations to areas of lower concentrations.

Gas flows through soil zone in a fashion similar to water movement. Soils having a high void ratio, such as sandy and clays, lead to less gas migration. The actual amount and rate of gas migration from landfill is largely dependent on the hydrogeologic conditions of the site. Laterally constructed in sand and gravel aquifers have been observed lateral movement of gas. Non-landfill sources include in degradation and mineralization. Since methane is relatively insoluble in water, the presence of ground water is significantly decreases gas migration.

Natural ventilation of any methane gas produced occurs to varying degrees during the summer months. Such natural ventilation will be enhanced by the course-grained composition of the cover soil. However, potential for off-site migration will tend to increase during the winter months due to frost closing the voids in the cover material which limits vertical ventilation and encourages horizontal migration.

Migrating methane gases may enter structures through cracks in the floor slabs or foundation walls, joints in the floor slab or around structural members, or through conduit openings for sanitary, water, and electrical services. The perviousness of service conduit backfills may actually aid methane migration.

Sampling

Methane Gas Sampling. The MSA model 53 Gascope is used to measure methane levels. Two different types of filaments in the gascope measure the percent of volume of gas in air and the lower explosive limit (LEL) of the gas. The gascope must be initially calibrated for the LEL of methane. Gas concentrations below the lower explosive limit are measured by the hot wire, Wheatstone Bridge method. The combustible gases are burned as they pass across the filament; the temperature of the filament is raised and the electrical resistance is increased. The increased resistance is proportional to the concentration of combustibles and registers on the meter as percent of the lower explosive limit. Gas concentrations above the lower explosive limit are measured by a thermal conductivity filament. The gas samples is passed across the filament which results in a decrease in the filament's resistance. The decrease in proportional to the gas concentration and is displayed on the meter as the percent of gas by volume in

Natural ventilation of any methane gas produced occurs by moving degrees during the summer months. Such natural ventilation will be embarrassed by the orientation-related composition of the cover soil. However, provided for effective migration will tend to increase during the plant months in. to cover alongside the walls in the lower magnitude which tends vertical ventilation and encourages horizontal movement.

Migrating methane gases may enter structures through cracks in the floor slabs or foundation walls, joints in the floor slab or around service ducts, or through conduit openings for electrical and plumbing-service. The performance of certain products and fill can be enhanced by site specific evaluation.

Sampling

Methane Gas Sampling. The MSA model 33 Pacemaker is used to measure methane levels. The instrument uses of filaments in the process measure the percent of volume of gas in air and the lower explosive limit (LEL) of the gas. The pumps must be initially calibrated for the LEL of methane, the concentrations below the lower explosion limit measured in the two ways. Measurement Filter method. The combustible gas sensor has heated platinum wires the filaments, the temperature of the filament is reduced and the electrical resistance is increased. The increased resistance is proportional to the combustibles and depending on the molecular weight of the lower explosive limit. Gas concentrations above the lower explosive limit are measured by a thermal conductivity filament. The sensor employs a pumped series the filament which results in a decrease in the filament's resistance. The reaction is compensated by the gas sensor and is displayed on the meter as the percent of gas by volume in

air. The MSA 53 Gascope measures all combustible gases and does not differentiate between types of combustible gases (1).

The MSA, model 53 gascope displays the meter readings for two principal variables: (1) the percent of combustible gas comprising the lower explosive limit for methane and 2) the percent of gas by volume differing from atmosphere. The lower explosive limit (LEL) for methane is defined as five percent of gas by volume in air. The LEL is the minimum volume of methane necessary to sustain combustion (with a flame source present) or the lowest point at which methane will explode if concentrated in a confined area.

A gas meter reading of 100 percent of the LEL denotes that combustible gases are at or exceed the five percent LEL for methane. The percent of gas by volume differing from the atmosphere (percent gas) merely shows that different gas concentrations exist in certain est areas. The MSA gascope does not differentiate between combustible gases. The MSA gascope also does not identify specific gases or gas levels in the percent gas measurement. Gas Sampling Procedure and Protocol

1. Calibrate MSA Gascope Every 90 days
2. Sample designated locations every 30 days
3. Minimum two persons sampling teams should be maintained
4. Complete Inspection Log sheet for each sampling location at the time of sampling
5. If any site give meter readings of 25% or greater of the LEL immediately notify the building manager and note who notified on the inspection form with time and date.
6. Copy completed inspection sheet and mail copies to:
    1. City of Helena

air. The MSA 93 Oxygen measures all combustible gases and does not differentiate between types of combustible gases (1).

The MSA, model 93 gas meter displays the meter readings for the pilot-put variables: (1) the percent of combustible gas compared to the explosive limit for methane and (2) the percent of gas by volume differing from atmosphere. The lower explosive limit (LEL) for methane is defined as five percent of gas by volume in air. The LEL is the minimum volume of methane necessary to support combustion (with a flame source present) or the lowest point at which methane will explode if concentrated in a confined area.

A gas meter reading of 100 percent of the LEL denotes that combustible gases are at or exceed the five percent LEL for methane. The percent of gas by volume differing from the atmosphere (percent gas) merely shows that different gas concentrations exist in certain areas. The MSA gasoxpe does not differentiate between combustible gases. The MSA gasoxpe also does not identify specific gases or gas levels in the percent gas measurement. Gas Sampling Procedure and Frequency

1. Calibrate MSA Gasoxpe every 90 days
2. Sample designated locations every 30 days
3. Minimum two persons sampling team should be maintained
4. Complete inspection log sheet for each sampling location at the time of sampling
5. If any site gas meter readings of 25% or greater or the LEL immediately notify the building manager and note the notified on the inspection form with time and date.
6. Once completed inspection sheet and mail copies to
   1. City of Auburn

2. YMCA

3. Department of Military Affairs

4. Solid Waste Management Bureau

USF&G INSURANCE

UNITED STATES FIDELITY AND GUARANTY COMPANY
FIDELITY AND GUARANTY INSURANCE UNDERWRITERS INC.
FIDELITY AND GUARANTY INSURANCE COMPANY
FIDELITY & GUARANTY LIFE INSURANCE COMPANY
THOMAS JEFFERSON LIFE INSURANCE COMPANY
FIDELITY INSURANCE COMPANY OF CANADA

IMPORTANT

Retain for Reference

TO: All Agents

DATE: 11/29/82

FROM: Helena - Casualty - Ralphe E. Merrill

SUBJECT: Resource Conservation and Recovery Act (RCRA)
Federal Environmental Protection Agency(EPA)
Hazardous Waste Management Regulations

Environmental issues continue to be raised in the trade press. Consumers, producer and insurers have found it equally challenging keeping abreast of the developments The purposes of this letter are to briefly summarize current environmental insurar regulations and to discuss USF&G's present underwriting position.

FINANCIAL REQUIREMENTS FOR HAZARDOUS WASTE FACILITIES

The EPA has introduced final financial requirements for owners and operators of hazardous waste treatment, storage or disposal facilities. Hazardous waste generators are not subject to financial requirements unless they also treat, store or dispose of wastes. An owner or operator may meet these requirements by passing a financial test, by securing liability insurance or by combination of the two. Evidence of insurance must be domonstrated to the EPA regional administrator throu either a Hazardous Waste Facility Liability Endorsement or a Certificate of Liabil Insurance. The wording of each must be identical to wording specified in the regu lations. The liability insurance required is as follows:

1. Sudden Accidental Coverage: $1,000,000 per occurrence, $2,000,000 aggregate required as of 7/15/82.
2. Gradual Pollution Coverage (surface impoundments, land fills, or land treatment facilities): $3,000,000 per occurrence, $6,000,000 aggregate; required by 1/16/83 when annual revenues are $10,000,000 or more; required by 1/16/84 when annual revenues are $5,000,000 to $10,000,000 and required by 1/16/83 for all other facilities.

Depending on a states authorization under RCRA, however, owners and operators may be required to demonstrate financial responsibility to a state agency in addition to, or in lieu of, the federal regional administrator.

If the state has received Phase I interim authorization to enforce the RCRA progran the owners or operator need not satisfy federal financial requirements, but must comply with state financial requirements, if any. Phase I authorization means that the state hazardous waste program is equivalent to the federal program as it stood on May 19, 1980, before financial requirements were introduced.

If the state has received Phase II interim authorization to enforce the RCRA progr the owner or operator must demonstrate financial responsibility to the state agenc only, as the state is authorized to enforce its program in place of the federal program. Phase II authorization means that the state hazardous waste program is equivalent to the federal program.

State financial requirements may or may not be the same as federal requirements, and unfortunately, the endorsement or certificate which the federal regulations specify may or may not be acceptable to the state agency.

what is the case here?

ISO's pollution liability policy filing was predicated on the belief that a single claims-made policy covering both sudden and gradual pollution is the best mechanis for insuring pollution exposures. Since insurance for gradual pollution will not become required until January 1983 ISO has also filed a Hazardous Waste Facilities Amendatory Endorsement for general liability policies. Therefore, insurers have the option of providing the sudden accidental coverage required at present either on a claims-made basis or under a general liability policy endorsed to reflect separate limits for pollution liability.

ISO's pollution liability policy and hazardous waste facilities amendatory endorsement are the only coverage vehicles on file and available to demonstrate financial responsibility for sudden or gradual occurrences.

Financial responsibility for closure and post closure care costs is a related, but distinct, aspect of the RCRA requirements. Although insurance (perhaps some form of guaranty insurance) is one of the options available to owners and operator (note: trust funds, letters of credit or surety bonds are also satisfactory), ISO has not attempted to develop an insurance coverage for these costs, and no action is contemplated.

POLLUTION LIABILITY INSURANCE

USF&G is willing to entertain submissions for pollution coverage from risks needin evidence of liability insurance under federal and/or state environmental regulations, providing the Company writes all Casualty lines. Pollution coverage will not be solicited as a "specialty line". Environmental insurance is still a new and untested market, however, and one for which no rate-making foudation exists. Therefore, our underwriting position is based on the following principles:

1. Special reinsurance arrangements are necessary. Pricing will be substantially influenced by reinsurance costs.
2. Extensive engineering and underwriting is necessary on each risk. The focus will be on (1) properties, quantities and handling of wastes or substances, and (2) location characteristics and proximity to property, water supplies, populations, etc.
3. Claims-made pollution insurance, developed by ISO in direct response to federal regulatory requirements, recognizes that pollution liability has characteristics (e.g. potential for latent bodily injury) which warrant treatment under a separate pollution policy form. Where it has been approved for use, claims-made coverage is the only insurance the Company will certify to as evidence of financial responsibility.
4. Home Office approval is required prior to committment of the Company to coverage requested under state or federal financial regulations.

It must be emphasized to our agents and insureds that the process of securing applications, engineering reports and arranging reinsurance will be lengthy and involved. Sixty days lead time should be allowed.

More information - classifications, applications, underwriting guidelines, policy forms - will be released in the near future, Until then, continue to contact our office relative to all inquiries for coverage mandated by federal or state environmental regulations.

Montana International Insurance

"people helping people"

October 22, 1982

Mr. Jeff Sherlock
City Attorney
City of Helena

Re: YMCA Park Development

Dear Mr. Sherlock,

The purpose of this letter is to search for an alternative to the present language in the deed for the acreage the City of Helena and the Helena YMCA are discussing. A major concern of the YMCA is the far-reaching assumption made by the hold harmless clause contained in the proposed agreement.

On page three (3) of the agreement; item seven (7), the YMCA is to assume all liabilities arising out of the YMCA's use of the property. The clause goes on to state that the YMCA must both furnish the City of Helena with adequate insurance to protect the City from any and all liability, and name the City as an additional insured.

As president of the YMCA, and their insurance agent, I have suggested to the Y that such an assumption of risk would be very expensive to insure in the manner as stated in the deed. There is an element of risk that must be taken into account in regard to possible pollution. The non-sudden, or non-accidental escape of pollutants into the environment is an exposure not included in standard general liability insurance policies. However, sudden and accidental release of pollutants normally is covered.

Realizing that the Y did not have coverage included for all types of pollution, I sought premium quotations for this exposure of the landfill area. The total cost of pollution coverage with a limit of $1,000,000 is $10,000 per year. Of course this yearly premium makes the project less than cost effective. It appears that if this type of insurance is a requirement, the entire project could be in jeopardy.

The City of Helena has the same type of protection for pollution as that carried by the YMCA--"sudden and accidental release" coverage. Neither the City, nor the Y have the broad pollution coverage in the current insurance. However the YMCA does currently carry high limits of

Continued

October 22, 1982

Mr. Jeff Sherlock
City Attorney
City of Helena

Re: YMCA Park Development

Dear Mr. Sherlock,

The purpose of this letter is to search for an alternative to the present language in the deed for the average the City of Helena and the Helena YMCA are discussing. A major concern of the YMCA is the far-reaching assumption made by the hold harmless clause contained in the proposed agreement.

On page three (3) of the agreement, from seven (7), the YMCA is to assume all liability arising out of the YMCA's use of the property. The clause goes on to state that the YMCA must be in furnish the City of Helena with adequate insurance to protect the City from any and all liability, and name the City as an additional insured.

As president of the YMCA, and their insurance agent, I have suggested to the Y that such an assumption of risk would be very expensive to insure in the market as stated in the deed. There is an element of risk that must be taken into account in regard to possible pollution. The aggregation, or concentration of pollutants into the environment is an exposure not included in standard general liability insurance policies. However, sudden and accidental release of pollutants normally is covered.

Realizing that the Y did not have coverage included for all types of pollution, I sought premium quotations for this exposure of the Lakehill area. The total cost of pollution coverage with a limit of $1,000,000 is $10,000 per year. Of course this yearly premium makes the proposal less than most attractive. It appears that this type of insurance is a requirement, the entire project could be in jeopardy.

The City of Helena has the same type of protection for pollution as that carried by the YMCA-sudden and accidental release" coverage. Neither the City, nor the Y have the broad pollution coverage in the current insurance. However the YMCA does currently carry high limits of

Cont'd

liability for injury and property damage that can be extended to cover the land without the broad pollution coverage. The city of Helena can be named as an additional insured on the Y's policy.

Since the site has been examined closely by the Montana Solid Waste Management Bureau, and Hydrometrics, it appears that with careful monitoring and watering restrictions, the chance of pollution problems can be significantly reduced. In view of this, we propose to have the YMCA name the City on the YMCA's insurance policies for the property and provide limits of coverage sufficient to satisfy the City of Helena.

It would seem appropriate for the city to choose the minimum limit of protection which would be acceptable--perhaps one or two million dollars. Since neither the Y or the City have pollution coverage to protect the non-sudden, non-accidental release, we suggest that it not be a requirement of the deed for the YMCA to hold the City harmless for all forms of pollution. Rather, we suggest that the YMCA assume liability for the exposures covered by the YMCA insurance policies up to the limits of protection mandated by the City.

This project is very good for the YMCA as well as the City of Helena. It will be a positive addition in the center of our City. Since many people will benefit from the creation of the park (both YMCA members and other city residents) we hope the alternative mentioned in this letter will be approved. We feel the YMCA will benefit greatly from such a nice development of this area, but more importantly, the entire City of Helena will be better for it.

Sincerely yours,

Tom

Thomas J. Downey, CPCU, CIC
YMCA Board President

TJD/cke

Monitoring wells

SID'S vs Taxes

AGREEMENT

THIS AGREEMENT is made and entered into this _____ day of September, 1982, by and between the CITY OF HELENA, MONTANA, a municipal corporation organized under the laws of the State of Montana, hereinafter referred to as "City", and the YOUNG MEN'S CHRISTIAN ASSOCIATION of Helena, Montana, a non-profit corporation organized under the laws of the State of Montana, hereinafter referred to as "YMCA".

W I T N E S S E T H:

In consideration of the mutual covenants and agreements herein contained, the receipt and sufficiency whereof being hereby acknowledged, the parties agree as follows:

1. City owns certain vacant property located in the NE1/4 NW1/4 and the NW1/4NE1/4 of Section 30, Township 10 North, Range 3 West, M.P.M. This property is located in the City of Helena, County of Lewis and Clark, State of Montana. The property in question contains some ten to twelve acres. The property in question is more particularly described on the attached Exhibit "A", which by this reference is made a part hereof.

2. This property has been envisioned by the City of Helena, in its master plan, as a desirable area for the development of recreational facilities for the residents of the City of Helena, Montana. The City of Helena hereby agrees to sell the above-described property to the YMCA on the terms and conditions herein set forth.

3. The purchase price for said property shall be One Dollar ($1.00).

Exhibit

4. The YMCA shall construct an outdoor recreational complex on said property, including, but not limited to, the creation of outdoor soccer fields and an outdoor running area. The property will be seeded with grass by the YMCA and maintained in a neat and orderly condition.

The YMCA would make said outdoor recreational area available to all members of the Helena community without restriction as to

race, color, religion, sex, age, or national origin. The YMCA may charge a fee for the use of said recreational area, which fee would not exceed the cost of the services provided to the members of the community. Provided, however, that at least 51% of the time when said recreational facility is in operation, the recreational area will be available for public use, without charge. It is agreed that all scheduling of the use of the recreational area, whether to be used with or without a fee, should be done through the YMCA.

5. All maintenance and operation costs associated with the operation and use of the recreational facility shall be borne by the YMCA.

6. The City of Helena will transfer its interest to the YMCA in the above-described property by means of a Quit Claim Deed. Provided, however, that the City will reserve to itself the easements listed on the attached Exhibit "B", which by this reference is made a part hereof.

No. Main Storm Sanitary Future Easement

Said Quit Claim Deed will refer to this agreement and be limited hereby. The City of Helena may place, as a condition on said Quit Claim Deed, any of the terms and conditions of this agreement.

In addition, if the YMCA fails to construct the above-referenced recreational facility within two (2) years of the execution of this agreement, or fails to comply with any of the terms and conditions of this agreement then, in that event, all of the right, title and interest of the YMCA in the above-described property shall cease and terminate and automatically revert to the City of Helena.

The YMCA acknowledges that it is familiar with the fact that the premises in question were formerly used by the City of Helena as a landfill dump. The YMCA acknowledges that improper use of the premises, such as overwatering, improper excavation, or the like, could result in a dangerous release of methane gas from the buried refuse under the premises. In this regard, the YMCA agrees that its development of the recreational facilities, and its use thereof, shall be in conjunction with, and in conformance with,

advice and rules of the Solid Waste Management Bureau of the State of Montana. The YMCA promises to refrain from employing construction practices on the facility, or maintenance practices thereon, which tend to increase methane gas discharge from the premises, when alternative means to the same end exist which will not increase methane gas discharge. In addition, the YMCA agrees to refrain from any practice of procedure whatsoever, that would cause a methane gas discharge from the premises to exceed a dangerous level of methane gas discharge as established by the Federal, State or local governments. Sept 1970 Sept 1977 Age of Landfills Facility

7. The YMCA agrees to hold and save the City, its agents, employees and officers, harmless from any and all costs, liability, damages, expenses, fees, or other charges, of any kind or nature, in any way arising from the YMCA's construction of recreational facilities on the above-described property, or the YMCA's use of said premises. The YMCA shall furnish the City of Helena with adequate insurance coverage, acceptable to the City of Helena, which insurance shall name the City of Helena as an additional insured. Said insurance will be of a sufficient nature and amount to protect the City of Helena from any and all liability as envisioned by this paragraph.

8. Please understand that the YMCA will endeavor to obtain sufficient water to maintain grass on the soccer fields in the facility by drilling a well or wells on or near the property. If reasonable hydrological evidence shows that the City's present wells serving the City's golf course north of the property fail to yield their established quantities of water because of the use by the YMCA of its wells, and but for the YMCA's use of its wells the City wells would continue to produce sufficient yield, then the YMCA agrees to stop utilizing its wells until such time as both parties may again use their wells without loss of yield from the City's wells.

9. Any parking lot constructed on the premises shall be paved according to City specifications. The City shall contribute a total of Twenty-five Thousand Dollars ($25,000.00) towards the

construction of the recreational facilities above-mentioned. Ten Thousand Dollars ($10,000.00) of this amount shall consist of in kind services by the City of Helena in rough-grading of the project area. The balance of Fifteen Thousand Dollars ($15,000.00) shall be paid by the City of Helena's buying the grass seed for the project, and in kind services in hauling topsoil from the Helena City-County Airport to the project site. In this regard, the City will donate the topsoil at the City-County Airport and haul the same to the project site. The approximate amount of topsoil available is 3,000 cubic yards.

10. The property is to be used for recreational and physical fitness activities by the YMCA. The YMCA may neither put the property to use as incompatible with such activities, nor sell, lease or otherwise assign the property, except to entities approved in advance by the City, which entities wish to operate, subject to and consistent with this agreement, recreational programs on all or part of the premises. Assignment of that portion of the premises presently used for City baseball is contemplated under the foregoing exception. However, any sale, lease or assignment by the YMCA must be with the express consent of the City. Said consent will not be unreasonably withheld.

11. This agreement shall be binding on the parties, their successors and assigns. However, the YMCA may not assign this contract without the express written consent of the City. Any covenants attached to the deed to be delivered to the YMCA pursuant to this agreement shall attach to and run with the land and the City may institute and prosecute any proceedings at law or in equity against the person or persons violating or threatening to violate the same.

12. The YMCA agrees to indemnify and hold harmless the City, its agents, employees and officers, from and against all claims, damages, losses, expenses and costs of any kind, in any way arising out of any changes in the nature or character of the property by the YMCA.

[illegible] of the recreational facilities [illegible] improvements. For [illegible] thousand dollars ($250,000.00) of this amount shall consist of in kind services by the City of Oxnard in rehabilitating of the project area. The balance of [illegible] thousand dollars ($[illegible],000.00) shall be paid by the City of Oxnard's having the grant used for the project, and in kind services in banking interest from the Oxnard-County Airport in the project area. In this regard, the City will change the zoning at the Oxnard-County Airport and lease the area to the project area. The appropriate amount of [illegible] available is $[illegible] cents yearly.

10. The property is to be used for temporary and physical training activities by the YMCA. The YMCA may mortgage the property as use as security with such activities, but shall not sell or otherwise dispose the property, except to activities approved by advance by the City, which activities will be temporary, subject to and consistent with this agreement, reversionary rights on all or part of the property. Abandonment of this activities or the property presently used for City Department is prohibited under the Corporation agreement. However, any sale, lease or assignment by the YMCA must be with the express consent of the City. Said consent will not be unreasonably withheld.

11. This agreement shall be binding on the parties, their successors and assigns. However, the YMCA may not assign this agreement without the express written consent of the City. Any covenants expressed in the deed to be delivered to the YMCA pursuant to this agreement shall also be and can run with the land and the [illegible] against the terms of persons violating or threatening to violate the same.

12. The YMCA agrees to indemnify and hold harmless the City, its officers, employees and officers, from and against all claims, damages, losses, expenses and costs of any kind, in any way arising out of any changes in the nature or character of the property by the YMCA.

[illegible]

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above written.

THE CITY OF HELENA, MONTANA

By_____

YOUNG MEN'S CHRISTIAN ASSOCIATION

By_____

g+c - Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

Room A-201
COGSWELL BUILDING

TED SCHWINDEN, GOVERNOR

STATE OF MONTANA

Telephone: (406) 449-2821

HELENA, MONTANA 59620

November 16, 1982

Mr. Charles Micklewright
Director, YMCA
1200 N. Last Chance Gulch
Helena, MT 59601

Dear Mr. Micklewright:

The purpose of this letter is to document our telephone conversation of November 10 in which we the Solid Waste Management Bureau gave out conceptual approval to the YMCA's planned development of the inactive portion of the Helena city landfill. Properly installed and operated, the recreational activity areas will be an asset to the Helena area.

Our approval assumes the project will adhere to the recommendations outlined in the June 30, 1982 Hydrometrics report "Hydrological Evaluation, Helena Municipal Landfill, Helena, Montana." Provided those conditions are met, the project shouldn't contribute to the leachate or methane gas potentials associated with the site.

Sincerely,

Duane L Robertson

DUANE L. ROBERTSON, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

DLR:ao

HYDROMETRICS
2727 Airport Road
Helena, Montana 59601
(406) 443-4150

December 3, 1982

Mr. Charles Micklewright
General Director
YMCA
1200 No. Main
Helena, Montana 59601

Dear Mr. Micklewright:

This letter-report is in response to your recent request for information on potential environmental problems associated with YMCA use of City of Helena property. This property, located just west of the YMCA building, was previously a sanitary landfill for the community of Helena and, as you know, landfills can cause groundwater pollution problems and generate explosive gases.

This letter report discusses the mechanism of decomposition of landfill materials, provides a description of potential liability exposures and gives some information that will help you in determining appropriate insurance coverage and the sharing of liability with the City of Helena. As you are aware, the recent report by Hydrometrics (1982) provided detailed description of the landfill and describes monitoring plans for this facility. Information in this letter was prepared by myself and by the staff of the Montana Solid Waste Management Bureau.

Landfill Decomposition

Solid wastes deposited in a landfill decompose by a combination of biological, chemical and physical processes that produce solid, liquid and gaseous products. Factors which affect the degradation of solid wastes in a landfill are: the heterogeneous character of the wastes, the availability of oxygen and moisture, temperature and microbial population. Solid wastes initially decompose aerobically, but as the oxygen supply is exhausted, anaerobic microorganisms predominate and produce methane gas.

Precipitation, surface water or groundwater infiltrating through solid waste can produce leachate. Leachate is a solution containing dissolved and finely suspended solid and microbiological waste products. The amount of leachate produced depends upon the distribution of precipitation, permeability of cover material, evaporation from cover, and freezing and thawing. Leachate can move either as unsaturated or saturated flow. The type of flow depends upon the composition and permeability of the materials underlying the landfill and the configuration of the water table. Movement of leachate is faster through soils with high permeability, such as gravels and sands, and slower through low permeability soils, such as silt and clays. A diagram showing the movement of leachate from a landfill into groundwater is in Figure 1.

Leachate percolating through soils underlying and surrounding solid waste is subject to purification or attenuation. Some contaminants in leachate are attenuated by processes of filtration, adsorption, ion

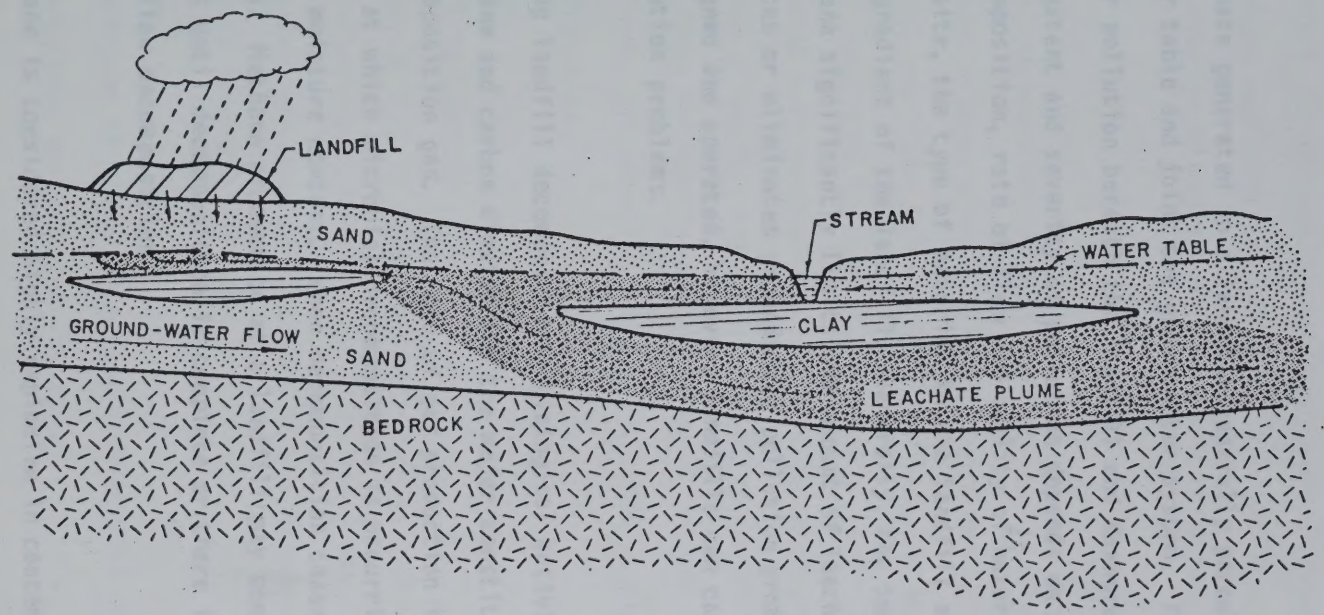


Figure 1. Diagram showing the movement of leachate from a landfill into ground water (from EPA, 1977).

exchange and biodegradation. Usually, attenuation is greater in fine-grained materials.

Leachate generated in a landfill generally percolates downward to the water table and joins the groundwater system. This can cause groundwater pollution beneath the landfill and downgradient of the landfill. The extent and severity of pollution depends on the rate of landfill decomposition, rate of flow and quality of natural groundwater beneath the site, the type of material in the landfill and soils beneath and downgradient of the landfill. Generally, the semi-arid climate of Montana significantly limits the amount of leachate from landfills and reduces or eliminates groundwater pollution problems. If not properly designed and operated, however, landfills can cause severe groundwater pollution problems.

During landfill decomposition, biological activity produces gas. Methane and carbon dioxide are the major constituents of landfill decomposition gas. The rate of gas production is controlled by the rate at which microbial decomposition is occurring, which is dependent upon moisture content. When decomposition ceases, gas production also stops. Methane production at a landfill may continue for a number of years until decomposition is complete or there is insufficient moisture to allow decomposition.

Methane is considered highly explosive in concentrations between 5 to 15 percent by volume in air (Brunner and Keller, 1972). The potential for methane explosions must be considered when solid wastes are

exchange and biodegradation. Usually, attenuation is greater in fine-grained materials.

Leachate generated in a landfill generally percolates downward to the water table and joins the groundwater system. This can cause ground-water pollution beneath the landfill and downgradient of the landfill. The extent and severity of pollution depends on the rate of landfill decomposition, rate of flow and quality of natural groundwater beneath the site, the type of material in the landfill and soils beneath and downgradient of the landfill. Generally, the semi-arid climate of Montana significantly limits the amount of leachate from landfills and reduces or eliminates groundwater pollution problems. If not properly designed and operated, however, landfills can cause severe groundwater pollution problems.

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Methane is considered highly explosive in concentrations between 5 to 15 percent by volume in air (Brunner and Keller, 1983). The potential for methane explosions must be considered when solid wastes are

deposited in a landfill. Migration of gas beyond the landfill into surrounding soils and/or overlying structures occurs by two basic processes: convection, which is movement in response to pressure gradients; and diffusion, which is movement from areas of higher gas concentration to regions of lower concentration (Vail and Associates, 1979).

The gas permeability of soils influences the movement of gas. Gas movement is greater in soils with high permeability, such as sands and gravels, and lower in soils with low permeability, such as clays and silts. Dry soils will not significantly impair the flow of gas, but saturated soil such as clay can form an excellent barrier. If the cover on a landfill acts as a barrier, gases will migrate laterally until they can vent to the atmosphere. Methane is insoluble in water; therefore, the water table beneath a landfill will inhibit the depth of gas migration.

Liability Exposure

The use of City of Helena property by the YMCA must be considered in view of potential benefits and liabilities associated with the property. One obvious liability is the potential for the landfill to generate leachate and gases.

The question of liability exposure associated with the YMCA use of this property must consider the following:

denoted in a landfill. Migration of gas beyond the landfill area surrounding soils and/or underlying structures occurs by two basic processes: convection, which is movement in response to pressure gradients; and diffusion, which is movement from areas of higher gas concentration to regions of lower concentration (Hall and Associates, 1979).

The gas permeability of soils influences the movement of gas. Gas movement is greater in soils with high permeability, such as sands and gravels, and lower in soils with low permeability, such as clays and silts. Dry soils will not significantly impede the flow of gas, but saturated soil such as clay can form an effective barrier. If the cover or a landfill acts as a barrier, gases will migrate laterally until they can vent to the atmosphere. Methane is insoluble in water; therefore, the water table beneath a landfill will inhibit the depth of gas migration.

Liability Concerns

The use or city of Helena property by-law could be considered in view of potential benefits and liabilities associated with the property. One obvious liability is the mutagenic/carcinogenic potential of generate landfill gas gases.

The question of liability exposure associated with the TMCA use of city property must consider the following:

1) Long-term problems related to pollution of wells downgradient from the landfill site.

2) Pollution of groundwater beneath and downgradient of the landfill site.

3) Generation of methane gas and potential explosive hazards.

4) Pollution of surface water derived from groundwater flowing from the landfill site.

Of considerable concern would be the pollution of wells downgradient of the landfill site. Approximately 3,000 feet north and downgradient of the landfill site, are several private wells used for household purposes. Several hundred feet north of these wells there are two existing wells used for public water supplies and an additional well that may in the future be used as a public water supply. The City of Helena has three wells located north of the landfill that are used to supply water to the municipal golf course. North of Custer Avenue (about one mile north of the landfill) there are a number of wells. Pollution of these wells due to the landfill would be a serious problem, particularly in the case of the public water supply wells. Pollution of the irrigation wells supplying the municipal golf course would be of lesser significance.

Pollution of groundwater beneath and downgradient of the landfill also would be of importance. Recently, the Montana Department of Health and Environmental Sciences has developed a groundwater pollution control program that gives the state authority over pollution of groundwater and provides penalties for those causing groundwater pollution. If

1) Long-term problems related to pollution of wells downgradient from the landfill site.

2) Pollution of groundwater beneath and downgradient of the landfill site.

3) Generation of methane gas and potential explosive hazards.

4) Pollution of surface water derived from groundwater flowing from the landfill site.

Of considerable concern would be the pollution of wells downgradient of the landfill site. Approximately 2,000 feet north and downgradient of the landfill site, are several private wells used for household purposes. Several hundred feet north of these wells there are two existing wells used for public water supplies and an additional well that may in the future be used as a public water supply. The City of Watonga has three wells located north of the landfill that are used to supply water to the municipal golf course. North of Custer Avenue (about one mile north of the landfill) there are a number of wells. Pollution of these wells due to the landfill would be a serious problem, particularly in the case of the public water supply wells. Pollution of the irrigation wells supplying the municipal golf course would be of lesser significance.

Pollution of groundwater beneath and downgradient of the landfill also would be of importance. Recently, the Oklahoma Department of Health and Environmental Sciences has developed a groundwater pollution control program that gives the state authority over pollution of groundwater and provides penalties for those causing groundwater pollution. If

groundwater became polluted downgradient of the landfill, the state would have the authority to require the groundwater pollution be stopped and the polluted area rehabilitated.

Correction of a groundwater pollution problem often is technically difficult, time consuming and very expensive. Problems that must be considered in correcting pollution problems are disposal of polluted water and implementation of long-term corrective, abatement or mitigation measures. In the case of a significant groundwater pollution problem associated with the landfill, the financial liability involved in clean-up could be substantial.

Generation of methane gas is a common feature of sanitary landfills and is occurring in the existing landfill. The National Guard Armory and the YMCA building are the nearest to the landfill and are of primary concern. Buildings owned by the City of Helena on the site also are of concern. The problem is the potential seepage of gas into these buildings and subsequent build-up of an explosive mixture of methane.

The only surface water associated with the landfill site is a stream that emminates from Last Chance Gulch and runs beneath the landfill site. This stream ultimately discharges into the dredged area north of the Burlington Northern railroad tracks. However, there is another small stream of water that surfaces north of the municipal golf course along McHugh Drive. If groundwater were to become contaminated beneath and downgradient of the landfill, it is possible that both of these streams ultimately could be impacted by the polluted groundwater.

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A discussion of potential liabilities associated with the landfill also must consider the probability for such pollution to occur. It must be understood that the landfill site is both geologically and hydrologically complex. The landfill is underlain by bedrock and unconsolidated alluvium; may be bounded by fault zones and intrusive rocks, and may be bounded on the north by a fault. The northern section of the landfill extension probably is underlain by a thick sequence of Tertiary semi-consolidated sedimentary strata. Hydrologically, the site also is complex. A storm drain and a sewer are present beneath the landfill and there is a groundwater table beneath the entire area. The landfill site also is downgradient from Last Chance Gulch, which is influenced by activities in the downtown business area.

Hydrogeological work conducted to date at the landfill site has been limited in its scope, and geological and hydrological characteristics of the landfill site are not well understood. There are factors that suggest groundwater pollution could be a problem at the landfill. There also are factors that suggest that groundwater pollution will not occur or will not be a significant problem. Factors that suggest pollution problems may occur or have occurred include:

1) There was a substantial odor noted at the landfill site during the recent grading of the site. An excavation in November 1982 to install a manhole released a strong odor caused by decomposition of landfilled material.

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1) There was a substantial odor noted at the landfill site during the recent grading of the site. An excavation in November 1987 to install a manhole released a strong odor caused by decomposition of landfilled material.

2) There has been, in the past, essentially no effort to control infiltration of water into the landfill. The site has been used by the city of Helena for disposal of snow, which melted and resulted in ponded water and subsequent infiltration.

3) The landfill is known to generate methane gas, indicating decompositon.

4) Data from recent sampling of monitoring wells suggests that there may be some degredation of groundwater quality beneath the landfill.

There also are a number of factors that suggest the landfill will not cause a pollution problem or the pollution problem will be minimal. These are:

1) Data from present test monitoring wells in the landfill show groundwater is consistantly below the bottom of the backfilled landfill trenches. This will prevent the deeply buried decomposable material from being periodically wetted by groundwater.

2) Recent excavation for a manhole revealed the landfill materials are relatively dry and there appeared to be no excessive moisture in the landfill. An odor was present, but this odor also has been noted in fresh garbage and it cannot be assumed the odor is indicative of groundwater pollution.

3) Recent monitoring well drilling in the new extension of the landfill site has shown that there is little groundwater flow in unconsolidatted materials north of the existing landfill.

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4) There is a substantial distance between the existing landfill and present water supply wells in the area and the water supply wells generally are considerably deeper than the bottom of the landfill.

5) Soil survey by the Soil Conservation Service showed a reasonably thick soil cover over the landfill. This cover can intercept and hold considerable moisture.

Based on the geological and hydrological complexities of the landfill area and limited knowledge of resources in this area, it cannot be concluded with certainty what future impacts may result from the landfill. Additional hydrological and geological data are needed to clarify conditions in the area and to provide a better basis for evaluation of potential long-term effects. This landfill was used for a number of years, however, and no significant groundwater quality problems are known to have been generated by the landfill. From monitoring wells in the existing groundwater system there is no evidence that severe pollution is occurring from the landfill.

Another factor that must be considered is assessment of potential pollution from the landfill is the water utilization plan developed for the YMCA facilities. There has been considerable effort by YMCA staff to develop a water use plan that will prevent downward percolation of water and yet maintain the required grassed playing areas. Much of the future potential for pollution at this site is directly dependent upon the design, installation and operation of the water system. Water management of the landfill under the direction of the YMCA may be less

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likely to create pollution problems than the previous use of the landfill site.

A water monitoring system will be required for the landfill and the a program must include stringent control of water applications and periodic measurements of soil moisture. Monitoring also must include wells peripheral to the landfill. It should be recognized that monitoring wells show what has happened in the landfill. When monitoring wells show pollution, then corrective actions must be taken. Monitoring wells are important but proper water management is by far the most important factor in use of this site. Poor water management practices could create a serious groundwater pollution problem. An essentially fail-safe water program must be developed and implemented for this site.

LIABILITY RESPONSIBILITY

Since the landfill site has been operated by the City of Helena for many years, it would seem reasonable the initial responsibility for pollution problems peripheral to this landfill should be the responsibility of the City. The YMCA, however, will need to begin accepting responsibility for this site as its program develops. Water pollution problems occur very slowly and commonly take a number of years before detection by monitoring systems. The City of Helena probably should maintain a share of the liability for this site for some years in the future. There is no rational means whereby the division of responsibility can be made and there is no technical basis for calculating a division of liability.

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In view of the lack of criteria for establishing liabilities, the following is a possible division of responsibility and liability between the City and the YMCA. This division has no scientific basis, but hopefully is a reasonable compromise between the years of use of the site by the City and the ultimate long-term operation of this site by the YMCA.

Year	City of Helena	YMCA
1	90	10
2	85	15
3	80	20
4	75	25
5	70	30
6	60	40
7	50	50
8	40	60

After the eighth year, the division of liabilities may need to be reassessed, insurance coverage re-examined and the division of responsibility and liability changed.

It has been a pleasure to help you with this important YMCA project. If you have any questions on this letter report, please do not hesitate to contact me.

Sincerely,

M. K. Botz, P.E.
Hydrologist/Engineer

MKB:jy

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Year	City of Salem	YMCA
1	90	10
2	80	15
3	60	20
4	75	25
5	65	35
6	55	45
7	50	50
8	40	60

After the eighth year, the division of liabilities may need to be reassessed, insurance coverage re-examined and the division of responsibility and liability changed.

It has been a pleasure to help you with this important YMCA project. If you have any questions on this letter report, please do not hesitate to contact me.

Sincerely,

R. L. Sutz, P.E.
Symbolstatic/Engineer

RSS:ly

REFERENCES

Brunner, D. R. and Keller, D. J., 1972, Sanitary Landfill Design and Operation; U. S. Environmental Protection Agency Report SW-65ts, 57p.

Hydrometrics, 1982, Groundwater Monitoring Program, City of Helena Sanitary Landfill, Helena, Montana. Private Report to City of Helena, 15p.

U. S. Environmental Protection Agency, 1977, Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities: Report No. SW-616, 269p.

Vail, R. and Associates, 1979, Investigation of Methane Gas Problems at High Priority Waste Disposal Sites: State of Colorado, Contract No. C-294525, 45p.

AREAWIDE PLANNING ORGANIZATION
316 North Park Avenue
Helena, Montana 442-9920 ext. 372

M E M O R A N D U M

TO: City Commission

FROM: Jo Messex, Planning Staff

DATE: October 13, 1982

SUBJECT: Landfill Conditional Use Permit

The Zoning Commission of the City of Helena held a public hearing October 5, 1982 to consider a request to allow a Class II landfill in an M-I (manufacturing-industrial) zone (see map).

One proponent spoke. Two opponents concerned with adverse impacts on adjacent property addressed the Commission. One person spoke in general comment about the need for an ongoing groundwater monitoring program and the need to find a long term landfill site for the City.

After discussion, the Zoning Commission voted 5:0 to recommend APPROVAL of the Conditional Use Permit to allow a landfill in an M-I zone.

AREAWIDE PLANNING ORGANIZATION
316 North Park Avenue
Helena, Montana 442-9920 ext. 372

M E M O R A N D U M

TO: Zoning Commission

FROM: Jo Messex, Planning Staff

DATE: September 23, 1982

SUBJECT: Helena Landfill Conditional Use Permit

I. General Information

A. Specifications

1. Date of Application: September 13, 1982
2. Date of City Commission Review: October 18, 1982
3. Owner: Burlington Northern Railroad
4. Applicant: City of Helena
5. Location: This site is generally located north of the YMCA, west of North Main Street, east of Elk River Concrete and south of Sharbono Inc. and the Bill Roberts Golf Course (between the railroad tracks).
6. Zoning: MI-manufacturing/industrial
7. Surrounding zoning and land use:
north - CLM, R-2; commercial, residential, golf course
east - CLM; commercial
south - CLM - T(2); PLI; park, vacant and college
west - PLI, MI; college cemetary, manufacturing

B. Project Description

The applicant requests a conditional use permit to allow a Class II landfill in the M-I zone. This use is permitted through the conditional use process.

II. Conditional Use Permit Review

A. Conditional Use Requirements

Section 11-15-2(b) of the Zoning Ordinance requires consideration of four issues:

1. The use conforms generally to the objectives of the Comprehensive Plan and the intent of the ordinance,

2. Such uses will not adversely affect nearby properties or their occupants,

3. Such uses meet the overall regulations of the district in which they are located, and

4. Public hearings have been held, after the required legal notices have been given, and the public has been given a chance to be heard on the matter (Ord. 1766, 6-16-69).

1. The 1981 Comprehensive Plan designation for this area is Industrial and Related Uses with a portion in the southeast corner designated "to be acquired as park". The proposal is in general compliance with the Plan. The Zoning Regulations permitted garbage dumps in the MI zone by conditional use.

2. A Class II landfill does not accept hazardous wastes (chemicals) or raw sewage. They do accept dried, treated sludge. All material is covered with 6" of soil daily.

Possible adverse effects include traffic, noise, dust and odor. Current estimates are that a maximum of 300 cars a day visit the landfill.

An increase in traffic is not expected.

Some noise and dust may result from machinery operating on the site. Don Lewis, Superintendent of Sanitation/Shops, reports that the landfill was operated within 300 feet of the YMCA and National Guard for 7 years with no complaints about noise or dust.

Any potential odor problem will be addressed by covering materials daily with soil according to procedures specified by Solid Waste Management Bureau, Department of Health and Environmental Sciences, State of Montana.

All of these potential effects are short term as the land will be reclaimed and seeded as areas are filled.

In addition, there are possible groundwater and methane effects. These are discussed in the Discussion section.

3. At present the land is vacant and undeveloped. No permanent structures will be constructed on the site and the land will be filled and available for other uses. Any structure will have to comply with existing requirements in the MI zone.

4. Public hearings will be conducted by the Zoning Commission October 5, 1982 and by the City Commission October 18, 1982. Letters of notification have been mailed to adjacent property owners. To date, no response has been received.

III. DISCUSSION

The Site

The landfill site crosses the Last Chance Gulch drainage. It is comprised largely of dredge tailings and unconsolidated alleuvial material. The ground surface slopes gently to the north. Groundwater quality in the area is fair to poor (EPA, 1981). There is some possibility of commercial development 200' north of the railroad and residential development 500' north of the railroad.

History

The landfill is divided into three areas: Inactive Fill Area (next to the YMCA); Active Fill Area (being used now) and the Expanded Fill Area (proposed C.U.P.). The Active Area was filled ahead of schedule because of the recent dumping of unexpected quantities of roofing shingles this summer. As a result, a new trench has been dug in the Expansion Area and is now being used. The Expansion Area is zoned M-I (Manufacturing-Industrial). Landfills are permitted as a conditional use.

At present the City leases this property from Burlington Northern Railroad. The lease states that the only permitted use of this land is for depositing solid waste and residue materials. The lease, which expires August 31, 1985, requires the City to fill the property to designated levels using specified procedures.

Landfill Description

The C.U.P. proposal will allow expansion of the landfill to the north to a low lying area between the railroad tracks. A landfill trench located in the western portion of the expansion site will be filled in 6-8 months. Filling will then begin at the southeast corner of the expansion area and progress to the west. The area will have a 15 to 18 year lifespan (2,000) with an average annual waste load of 35,000 tons per year.

A groundwater monitoring program to measure an analysis sample has been developed for the landfill area to detect adverse groundwater impacts. There are seven wells at present and an additional six are proposed.

A storm drain and sanitary sewer underlie the landfill. To the north, there are a number of wells at the golf course (2 deep wells and an infiltration gallery), several domestic and two public water supply wells (trailer court and Cloverview).

Soils in the area are largely unconsolidated and there is some concern over the ability of the site to meet permeability standards. Additional test wells and monitoring will produce data that can be used to properly engineer the disposal trenches and covering methods.

Will Selser, City-County Health Department, is concerned that the monitoring is not complete. A soil analysis shows a poor soil profile which may result in inability to maintain permeability standards. He expressed desire to have a written committment from the City on when the additional monitoring wells would be established, and what type of capping material is proposed to cover the trenches.

Jim Leiter, of the Solid Waste Bureau, states that there are some potential limitations on the site due to high groundwater and soil restrictions. He commented that Hydrometrics*has done a series of reports on the area and is now doing one on a program to monitor any degradation of the site. He further commented that soil tests were being done to test permeability, percolation and leachates. The results will be used

*a consulting firm

to develop engineering specifications for fill and reclamation. He is confident that concerns about capping materials and additional wells will be addressed within a few weeks (the expected date of the Hydrometric report) and resolved.

Dick Nisbet, Director of Public Works, says that additional wells will be drilled as required by expansion. They are currently waiting on analysis from addiitonal testing by Hydrometrics. After the results are available, the consultant will make a recommendation on capping. If a cap is required, the city will work with the state to determine the best materials and construction techniques to be used.

IV. Recommendation

Staff recommends APPROVAL of this request for a Conditional Use Permit to allow a landfill in an MI zone.

The State Solid Waste Bureau will require additional wells and capping as necessary.

MEMORANDUM

TO: Jo Messex, Planning Department

FROM: Richard A. Nisbet, Director of Public Works

DATE: September 28, 1982

SUBJ: Special Use Permit for Landfill Site, Phase III

Reference is made to the City's application to APO for a Conditional Use Permit on the property we have under lease with Burlington Northern to allow for a landfill on the property located between the Burlington Northern railroad and west of North Main Street.

Transmitted herewith is a map showing the property to be landfilled and the sequence in which it will be accomplished starting with the site marked "excavated landfill trench." After that trench is completed, we will move to #1 and progress through the numerical sequence of each site through the life of the landfill which is anticipated to be fifteen years. We have retained the firm of Hydrometrics to complete a ground water monitoring program for the Helena Landfill Site and I am attaching my only copy of the report for your reference and the processing of this application. The City will install numerous monitoring wells at the locations indicated on the drawing to determine the existing ground water situation and any change that may take place as the landfilling operation would proceed. In addition, each of these proposed wells will also be monitored for methane as well as the existing wells that are shown numbered on the drawing and in dark color.

The City of Helena has been working with not only Hydrometrics but with the Department of Health and Environmental Sciences Solid Waste Management Bureau to ensure that this landfill operation meets all State and Federal requirements. With the completion of the soils analysis and the monitoring program, the City has approval of the site and it will meet all State and Federal requirements for landfill purposes.

A storm drain culvert is being installed through the natural existing drainage way in order that the entire site can be landfilled. We received authorization today from Burlington Northern that we can proceed with the contract and the contract will commence very shortly.

As outlined in the investigation done by Hydrometrics, the only area that ground water occurred was in site #7, immediately adjacent to the existing open channel. In accordance with State regulations, we will maintain a minimum of ten foot of clearance between the ground water table and the bottom of that site. No ground water was located at any of the other sites during the test borings and/or the seven backhoe pits that were dug on sites 1 through 6.

Fencing will be installed as we progress through the landfill sites to control any blowing paper and debris. This has been standard practice in both Phases I and II and will be continued through Phase III.

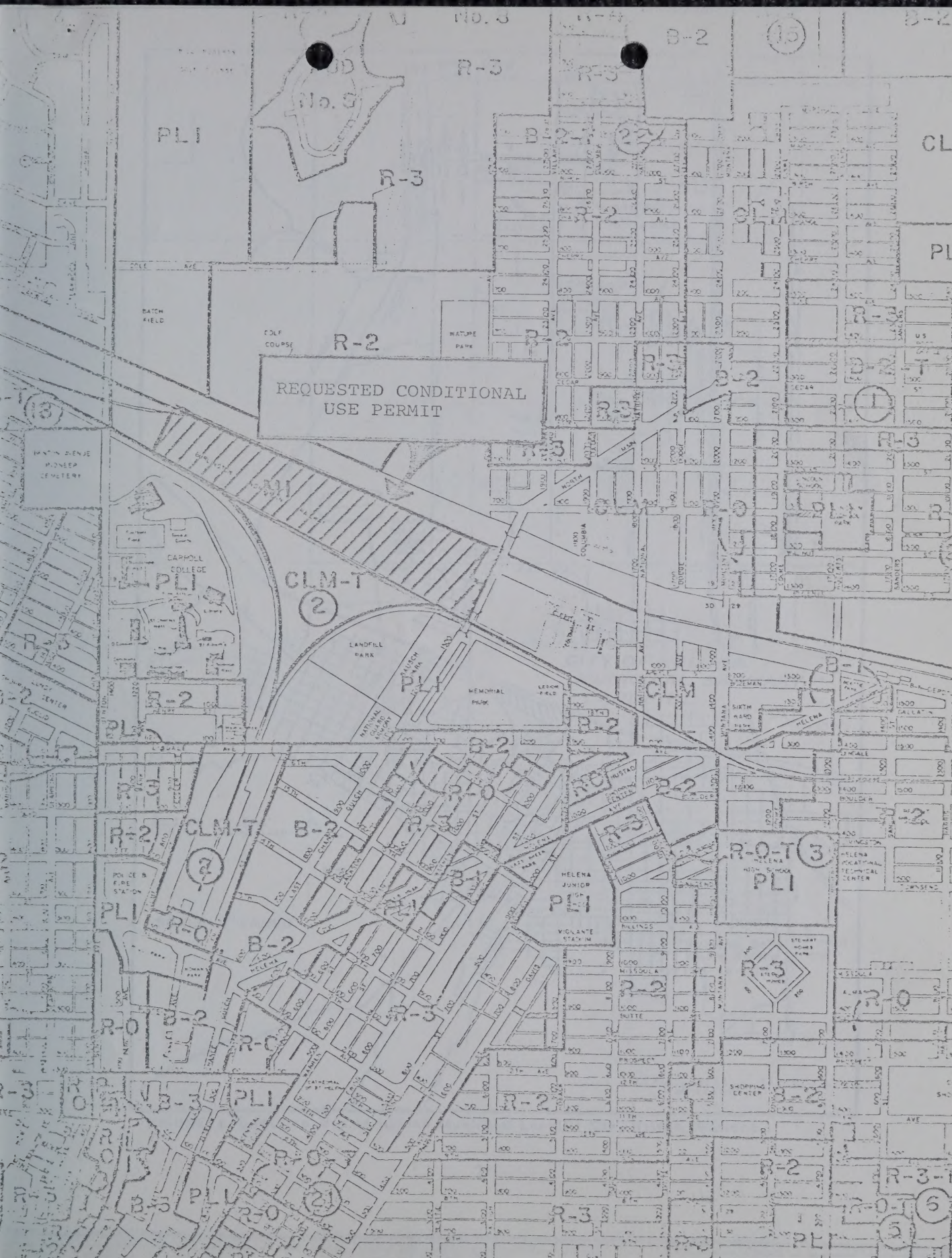
Respectfully submitted,

Richard A. Nisbet

RICHARD A. NISBET, P.E.
Director of Public Works

RAN:cp
Enclosure

cc: Don Lewis-Sanitation/Shops
City Manager


REQUESTED CONDITIONAL USE PERMIT
PLI
R-3
R-2
B-2
CLM-T
R-O
R-O-T
CARROLL COLLEGE
LANDFILL PARK
MEMORIAL PARK
HELENA JUNIOR HIGH SCHOOL
HELENA VOCATIONAL TECHNICAL CENTER
SHOPPING CENTER
GOLF COURSE
BATCH FIELD
NATURE PARK
POLICE & FIRE STATION
VIGILANTE STADIUM
NATIONAL GUARD ARMORY
MARTIN DENIS PIONEER CEMETERY

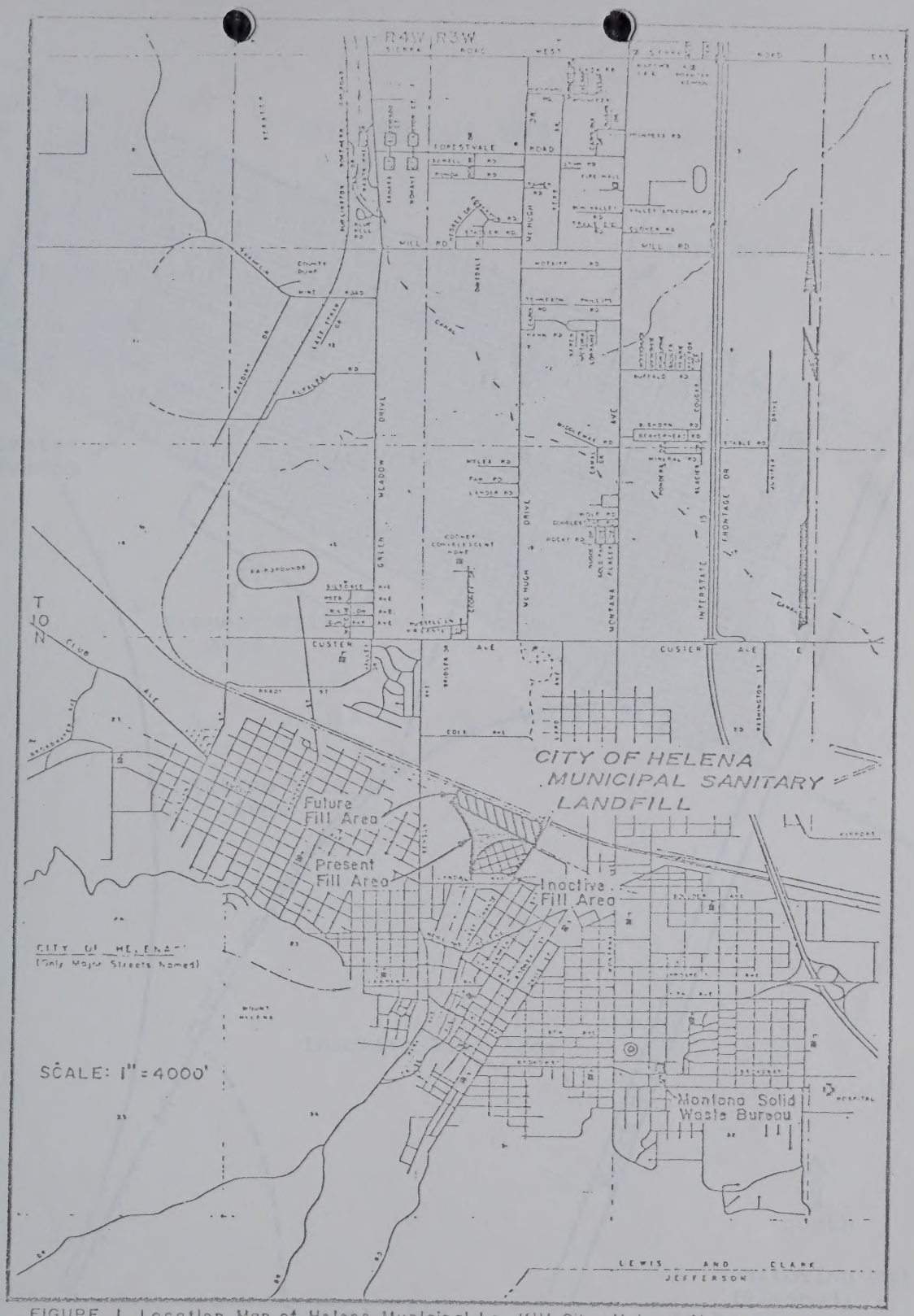
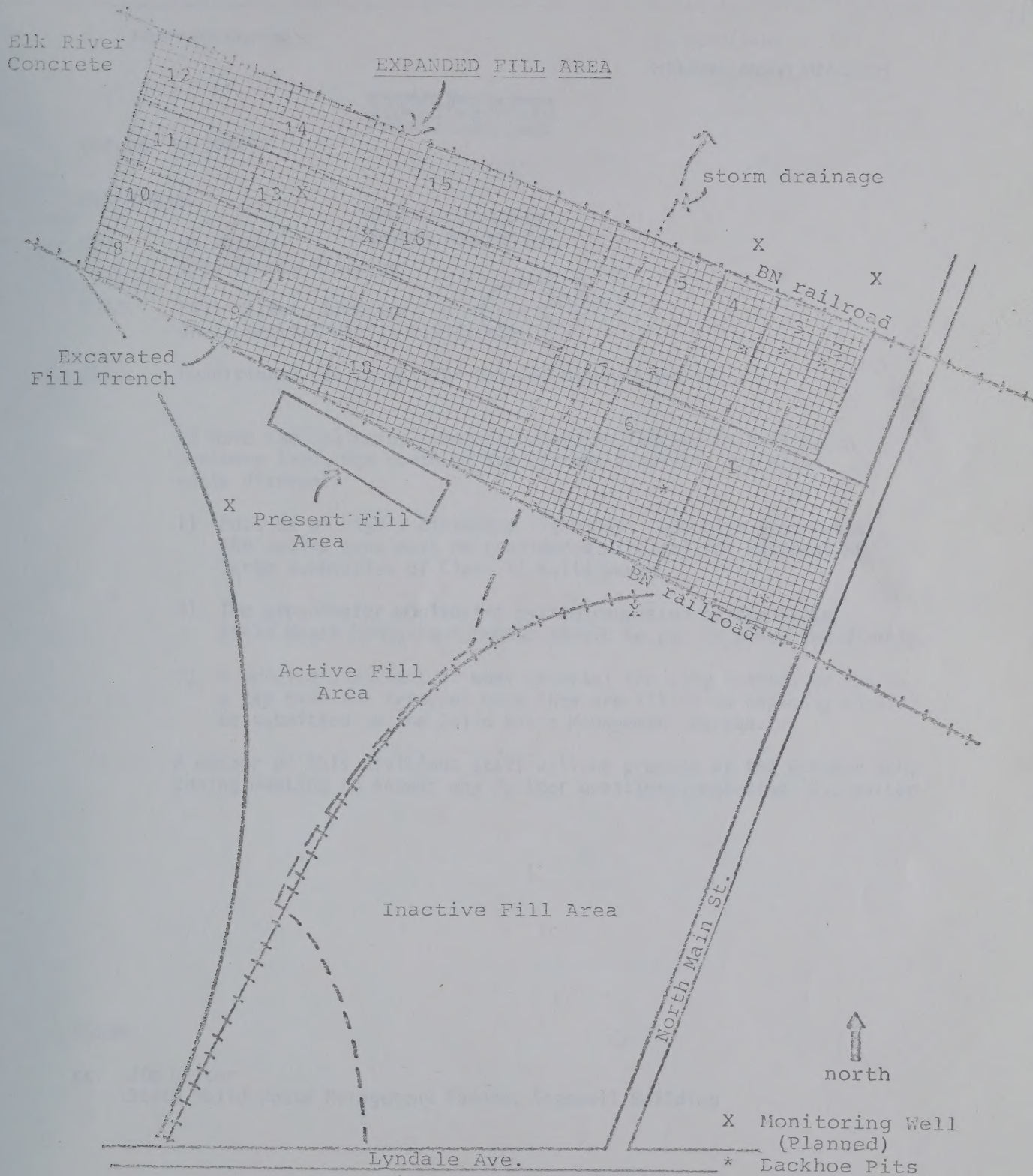


FIGURE 1. Location Map of Helena Municipal Landfill Site, Helena, Montana.


Elk River Concrete
EXPANDED FILL AREA
storm drainage
BN railroad
Excavated Fill Trench
Present Fill Area
BN railroad
Active Fill Area
Inactive Fill Area
North Main St.
north
X Monitoring Well (Planned)
* Backhoe Pits
Lyndale Ave.

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 443-1010

316 NORTH PARK
HELENA, MONTANA 59601

RECEIVED
OCT 4 1982
LEWIS & CLARK COUNTY
AREA-WIDE PLANNING ORG.

October 1, 1982

MEMORANDUM

TO: Jo Messex
City-County Planning

FROM: Will Selser, Director
Environmental Health Division WS

SUBJ: Conditional use permit for City of Helena Landfill

We have the following comments regarding the use of Burlington Northern land, due north of the current landfill, for solid waste disposal.

1) Because of highly disturbed lithology and high groundwater, the entire area must be considered marginal for disposal of large quantities of Class II solid waste.

2) The groundwater monitoring system requested by the State Solid Waste Management Bureau should be put in place immediately.

3) A precise statement of what material the city intends to use as a cap over the trenches once they are filled to capacity should be submitted to the Solid Waste Management Bureau.

A member of this divisions staff will be present at the October 5th, zoning meeting to answer any further questions regarding this matter.

WS/jm

cc: Jim Leiter
State Solid Waste Management Bureau, Cogswell Building

LAW OFFICES

Keller, Reynolds, Drake,
Sternhagen and Johnson

PAUL T. KELLER
MELVIN E. MAGNUSON (1911-1967)
PAUL F. REYNOLDS
GLEN L. DRAKE
P. KEITH KELLER
WILLIAM G. STERNHAGEN
THOMAS O. JOHNSON
RICHARD E. GILLESPIE

38 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601
TELEPHONE (406) 442-0230

RECEIVED
OCT 4 1982
LEWIS & CLARK COUNTY
AREA-WIDE PLANNING ORG.

October 4, 1982

HAND DELIVERED

Helena Zoning Commission
c/o Area-Wide Planning Organization
316 North Park
Helena, Montana 59601

Gentlemen:

Re: Conditional Use Permit - City Dump

This firm represents R & L Development, a partnership whose principals are Ronald J. Robinson and Richard W. Larson, and which owns Lots 1 through 10, Block 65 in the Central Addition to the City of Helena. This land adjoins land for which the conditional use permit for a dump is sought. My clients' land is currently zoned M-I for manufacturing and industrial uses.

This is R & L Development's protest of the proposed conditional use permit.

The reasons for this protest are obvious. The R & L Development land is currently a valuable, central, commercially useable site located on a major thoroughfare and with easy access to an interstate highway and the railroad. There is also the possibility that with a zone change, these lots with frontage on Main Street, could be used for a number of commercial purposes. If, however, the conditional use permit is granted to the City, these lots will lose a great deal, if not substantially all of their economic value. In essence, the City will have taken the lots without having paid any compensation for them.

Very truly yours,

P. Keith Keller

PKK:ps

RECEIVED
FEB 23 1982
CITY MANAGER
CITY OF HELENA

Mr. Robert Erickson
City Manager - Helena
316 North Park
City - County Building
Helena, Montana

cc: Michael Mulcahy
Lewis Verwey

Dear Mr. Erickson,

Following past discussions and having fully considered the matters discussed; R & L Development would, at this time, like to propose the sale of Lots 1 through 10, Block 65, Central Addition to the City of Helena. This property is located on North Main adjacent to the City's planned expansion of the Land Fill Operation.

Two independent appraisors have indicated a value for this property between $1.50 and $2.00 per square foot. The asking price is the $2.00 figure, as we feel this to be a very desirable piece of property. This equates to a sales price of $63,000. The property has 252 feet of frontage on North Main and is 125 feet in depth. The proposed terms of sale would be $10,000 down, annual installments of $10,000 until paid, and interest to accrue at 12% per annum.

As has been indicated to you, R & L Development purchased the subject property with construction plans in mind. The above offer is made per your recommendation, and should it not be accepted to our mutual agreement, it is hoped that these construction plans can be implemented as soon as possible.

Your consideration in this matter is greatly appreciated, and we are looking to hearing from you in the near future.

Sincerely,

R & L Development

4-13-82
met with Ron Robinson
advised him we were not
interested in purchasing
property

LJC

Helena landfill file

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU
HELENA, MONTANA

TELEPHONE LOG

PHONE CALL TO/~~FROM~~: Bob Hazeman 443-0918

PERSON MAKING/RECEIVING CALL: John Arrigo

DATE: 10/7/82

SUBJECT: Disposal of 4 gal. DDT in Helena landfill.

Mr. Hazeman called and said he had approx. 4 gal of liquid DDT that he needed to dispose of. I told him to call Don Lewis to see if the city would accept the waste and to arrange disposal.

A follow-up call to Mr. Hazeman indicated the city would take the waste for disposal Saturday. DDT is a toxic waste with EPA hazardous waste number U061. Less than 1000 kg. of such material ~~is~~ can be disposed of in an approved Class II landfill.

JACK B. MOORE, I.F.A.S. — C.R.A.

INDEPENDENT APPRAISERS AND COMPLIANCE BUILDING INSPECTORS
1305 Eleventh Ave., Helena, MT 59601
TELEPHONE (406) 442-6180

October 4, 1982

RECEIVED
OCT 15 1982
LEWIS & CLARK COUNTY
AREA-WIDE PLANNING ORG.

Mr. Dick Larson
1826 N. Main
Helena, Montana 59601

Dear Mr. Larson;

Pursuant to your request I have inspected the property located on the west side of North Last Chance Gulch between the Burlington Northern tracks. The purpose of the inspection is to report to you my opinion as to the possibility of a decline in value because of the city land fill dump operation to the west.

The site is a hillside site fronting to Last Chance Gulch that could be utilized for a daylight basement and street grade first floor building. The proposed office building that you indicated was planned for the site would be a feasible use of the property.

The city land fill dump use of the vacant land to the west for the time of the operation until the site is filled and the dump relocated, will in my opinion have an adverse effect on the subject site's desirability for tenants of an office building.

The longer range use of the land fill area will be limited in my view. Because of the landfill there is a possibiltiy of methane gas that will have to be monitored and will also limit the type of future development.

Construction of buildings will also be limited and will change to possible use as presently zoned to a more costly type building if allowed at all.

RECEIVED
OCT 19 1982
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

The most probable short range use upon completion of the landfill is park or open area. This will restrict other new building in the area and will have an effect on your property. Generally development with other building improvements will have a favorable effect of appreciation in values of all properties in an area.

An appraisal will be necessary to estimate values of the subject. The effect onvalues from the landfill operation would be considered in an appraisal by the market data approach. Due to my present work load, I do not have time to make an immediate appraisal at the present time, however it is my opinion there would be an adverse effect on the value of your property.

If you should decide that you need a full appraisal, let me know and at present I would need 8 to 10 weeks to complete the assignment.

Sincerely,

Jack B. Moore

Jack B. Moore,I.F.A.S.,C.R.A.

JBM/pm

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 443-1010

316 NORTH PARK
HELENA, MONTANA 59601

Helena landfill file

October 1, 1982

MEMORANDUM

TO: Jo Messex
City-County Planning

FROM: Will Selser, Director
Environmental Health Division WS

SUBJ: Conditional use permit for City of Helena Landfill

We have the following comments regarding the use of Burlington Northern land, due north of the current landfill, for solid waste disposal.

1) Because of highly disturbed lithology and high groundwater, the entire area must be considered marginal for disposal of large quantities of Class II solid waste.

2) The groundwater monitoring system requested by the State Solid Waste Management Bureau should be put in place immediately.

3) A precise statement of what material the city intends to use as a cap over the trenches once they are filled to capacity should be submitted to the Solid Waste Management Bureau.

A member of this divisions staff will be present at the October 5th, zoning meeting to answer any further questions regarding this matter.

WS/jm

cc: Jim Leiter
State Solid Waste Management Bureau, Cogswell Building

RECEIVED
OCT 4 1982
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

AREAWIDE PLANNING ORGANIZATION
316 North Park Avenue
Helena, Montana 442-9920 ext. 372

M E M O R A N D U M

TO: Zoning Commission

FROM: Jo Messex, Planning Staff

DATE: September 23, 1982

SUBJECT: Helena Landfill Conditional Use Permit

Ron Robinson
Dick Larson

I. General Information

A. Specifications

1. Date of Application: September 13, 1982
2. Date of City Commission Review: October 18, 1982
3. Owner: Burlington Northern Railroad
4. Applicant: City of Helena
5. Location: This site is generally located north of the YMCA, west of North Main Street, east of Elk River Concrete and south of Sharbono Inc. and the Bill Roberts Golf Course (between the railroad tracks).
6. Zoning: MI-manufacturing/industrial
7. Surrounding zoning and land use:
north - CLM, R-2; commercial, residential, golf course
east - CLM; commercial
south - CLM - T(2); PLI; park, vacant and college
west - PLI, MI; college cemetary, manufacturing

B. Project Description

The applicant requests a conditional use permit to allow a Class II landfill in the M-I zone. This use is permitted through the conditional use process.

II. Conditional Use Permit Review

A. Conditional Use Requirements

Section 11-15-2(b) of the Zoning Ordinance requires consideration of four issues:

1. The use conforms generally to the objectives of the Comprehensive Plan and the intent of the ordinance,

2. Such uses will not adversely affect nearby properties or their occupants,

3. Such uses meet the overall regulations of the district in which they are located, and

4. Public hearings have been held, after the required legal notices have been given, and the public has been given a chance to be heard on the matter (Ord. 1766, 6-16-69).

ADMINISTRATIVE PLANNING ORGANIZATION
210 North Park Avenue
Helena, Montana 442-8860 ext. 372

M E M O R A N D U M

TO: Zoning Commission

FROM: Jo Messex, Planning Staff

DATE: September 23, 1982

SUBJECT: Helena Landfill Conditional Use Permit

I. General Information

A. Recommendations

1. Date of Application: September 13, 1982
2. Date of City Commission Review: October 18, 1982
3. Owner: Washington Resident Building
4. Applicant: City of Helena
5. Location: This site is generally located north of the YMCA, west of North Main Street, east of Kit Street Cemetery and south of Sherwood Inc. and the Bill Mahoney Golf Course (between the railroad tracks).
6. Zoning: M-Manufacturing/Industrial
7. Surrounding zoning and land use:
   north - CLM, M-2; commercial, residential; golf course
   east - CLM; commercial
   south - CLM - C(2); Bill park, vacant and college
   west - PLI, M2; college cemetery, manufacturing

B. Project Description

The applicant requests a conditional use permit to allow a Class II landfill in the M-1 zone. This use is permitted through the conditional use process.

II. Conditional Use Review Criteria

A. Conditional Use Requirements

Section 11-13-2(b) of the Zoning Ordinance requires consideration of four issues:

1. The use conforms generally to the objectives of the Comprehensive Plan and the intent of the ordinance.

2. Such use will not adversely affect nearby properties or land occupants.

3. Such use meets the overall regulations of the district in which they are located, and

4. Public hearings have been held, after the required legal notice has been given, and the public has been given a chance to be heard on the matter (Ord. 1760, 9-18-82).

1. The 1981 Comprehensive Plan designation for this area is Industrial and Related Uses with a portion in the southeast corner designated "to be acquired as park". The proposal is in general compliance with the Plan. The Zoning Regulations permitted garbage dumps in the MI zone by conditional use.

2. A Class II landfill does not accept hazardous wastes (chemicals) or raw sewage. They do accept dried, treated sludge. All material is covered with 6" of soil daily.

Possible adverse effects include traffic, noise, dust and odor. Current estimates are that a maximum of 300 cars a day visit the landfill.

An increase in traffic is not expected.

Some noise and dust may result from machinery operating on the site. Don Lewis, Superintendent of Sanitation/Shops, reports that the landfill was operated within 300 feet of the YMCA and National Guard for 7 years with no complaints about noise or dust.

Any potential odor problem will be addressed by covering materials daily with soil according to procedures specified by Solid Waste Management Bureau, Department of Health and Environmental Sciences, State of Montana.

All of these potential effects are short term as the land will be reclaimed and seeded as areas are filled.

In addition, there are possible groundwater and methane effects. These are discussed in the Discussion section.

3. At present the land is vacant and undeveloped. No permanent structures will be constructed on the site and the land will be filled and available for other uses. Any structure will have to comply with existing requirements in the MI zone.

4. Public hearings will be conducted by the Zoning Commission October 5, 1982 and by the City Commission October 18, 1982. Letters of notification have been mailed to adjacent property owners. To date, no response has been received.

III. DISCUSSION

The Site

The landfill site crosses the Last Chance Gulch drainage. It is comprised largely of dredge tailings and unconsolidated alleuvial material. The ground surface slopes gently to the north. Groundwater quality in the area is fair to poor (EPA, 1981). There is some possibility of commercial development 200' north of the railroad and residential development 500' north of the railroad.

History

The landfill is divided into three areas: Inactive Fill Area (next to the YMCA); Active Fill Area (being used now) and the Expanded Fill Area (proposed C.U.P.). The Active Area was filled ahead of schedule because of the recent dumping of unexpected quantities of roofing shingles this summer. As a result, a new trench has been dug in the Expansion Area and is now being used. The Expansion Area is zoned M-I (Manufacturing-Industrial). Landfills are permitted as a conditional use.

At present the City leases this property from Burlington Northern Railroad. The lease states that the only permitted use of this land is for depositing solid waste and residue materials. The lease, which expires August 31, 1985, requires the City to fill the property to designated levels using specified procedures.

Landfill Description

The C.U.P. proposal will allow expansion of the landfill to the north to a low lying area between the railroad tracks. A landfill trench located in the western portion of the expansion site will be filled in 6-8 months. Filling will then begin at the southeast corner of the expansion area and progress to the west. The area will have a 15 to 18 year lifespan (2,000) with an average annual waste load of 35,000 tons per year.

A groundwater monitoring program to measure an analysis sample has been developed for the landfill area to detect adverse groundwater impacts. There are seven wells at present and an additional six are proposed.

A storm drain and sanitary sewer underlie the landfill. To the north, there are a number of wells at the golf course (2 deep wells and an infiltration gallery), several domestic and two public water supply wells (trailer court and Cloverview).

Soils in the area are largely unconsolidated and there is some concern over the ability of the site to meet permeability standards. Additional test wells and monitoring will produce data that can be used to properly engineer the disposal trenches and covering methods.

Will Selser, City-County Health Department, is concerned that the monitoring is not complete. A soil analysis shows a poor soil profile which may result in inability to maintain permeability standards. He expressed desire to have a written committment from the City on when the additional monitoring wells would be established, and what type of capping material is proposed to cover the trenches.

Jim Leiter, of the Solid Waste Bureau, states that there are some potential limitations on the site due to high groundwater and soil restrictions. He commented that Hydrometrics*has done a series of reports on the area and is now doing one on a program to monitor any degradation of the site. He further commented that soil tests were being done to test permeability, percolation and leachates. The results will be used

*a consulting firm

to develop engineering specifications for fill and reclamation. He is confident that concerns about capping materials and additional wells will be addressed within a few weeks (the expected date of the Hydrometric report) and resolved.

Dick Nisbet, Director of Public Works, says that additional wells will be drilled as required by expansion. They are currently waiting on analysis from addiitonal testing by Hydrometrics. After the results are available, the consultant will make a recommendation on capping. If a cap is required, the city will work with the state to determine the best materials and construction techniques to be used.

IV. Recommendation

Staff recommends APPROVAL of this request for a Conditional Use Permit to allow a landfill in an MI zone.

The State Solid Waste Bureau will require additional wells and capping as necessary.

MEMORANDUM

TO: Jo Messex, Planning Department

FROM: Richard A. Nisbet, Director of Public Works

DATE: September 28, 1982

SUBJ: Special Use Permit for Landfill Site, Phase III

Reference is made to the City's application to APO for a Conditional Use Permit on the property we have under lease with Burlington Northern to allow for a landfill on the property located between the Burlington Northern railroad and west of North Main Street.

Transmitted herewith is a map showing the property to be landfilled and the sequence in which it will be accomplished starting with the site marked "excavated landfill trench." After that trench is completed, we will move to #1 and progress through the numerical sequence of each site through the life of the landfill which is anticipated to be fifteen years. We have retained the firm of Hydrometrics to complete a ground water monitoring program for the Helena Landfill Site and I am attaching my only copy of the report for your reference and the processing of this application. The City will install numerous monitoring wells at the locations indicated on the drawing to determine the existing ground water situation and any change that may take place as the landfilling operation would proceed. In addition, each of these proposed wells will also be monitored for methane as well as the existing wells that are shown numbered on the drawing and in dark color.

The City of Helena has been working with not only Hydrometrics but with the Department of Health and Environmental Sciences Solid Waste Management Bureau to ensure that this landfill operation meets all State and Federal requirements. With the completion of the soils analysis and the monitoring program, the City has approval of the site and it will meet all State and Federal requirements for landfill purposes.

A storm drain culvert is being installed through the natural existing drainage way in order that the entire site can be landfilled. We received authorization today from Burlington Northern that we can proceed with the contract and the contract will commence very shortly.

As outlined in the investigation done by Hydrometrics, the only area that ground water occurred was in site #7, immediately adjacent to the existing open channel. In accordance with State regulations, we will maintain a minimum of ten foot of clearance between the ground water table and the bottom of that site. No ground water was located at any of the other sites during the test borings and/or the seven backhoe pits that were dug on sites 1 through 6.

Fencing will be installed as we progress through the landfill sites to control any blowing paper and debris. This has been standard practice in both Phases I and II and will be continued through Phase III.

Respectfully submitted,

Richard A. Nisbet

RICHARD A. NISBET, P.E.
Director of Public Works

RAN:cp
Enclosure

cc: Don Lewis-Sanitation/Shops
City Manager


REQUESTED CONDITIONAL USE PERMIT
BILL ROBERTS GOLF COURSE
No. 8
No. 9
PLI
R-3
R-2
B-2
R-4
B-2
CLM
PL
BATCH FIELD
GOLF COURSE
NATURE PARK
GOLF AVE
CARROLL COLLEGE
CLM-T
LANDFILL PARK
MEMORIAL PARK
LEGION FIELD
NATIONAL GUARD ARMORY
CLM
SIXTH WARD PARK
HELENA
GALLATIN
BOULDER
HUSTAD SHOPPING CENTER
R-O
R-3
R-O-T
HELENA HIGH SCHOOL
HELENA VOCATIONAL TECHNICAL CENTER
HELENA JUNIOR HIGH SCHOOL
VIGILANTE STADIUM
BILLINGS
STEWART HOMES PARK
MISSOULA
BUTTE
PROSPECT
SHOPPING CENTER
R-3-T
R-O-T
POLICE & FIRE STATION
CATHEDRAL OF ST. HELENA
B-3
R-O
R-2
R-3
PLI

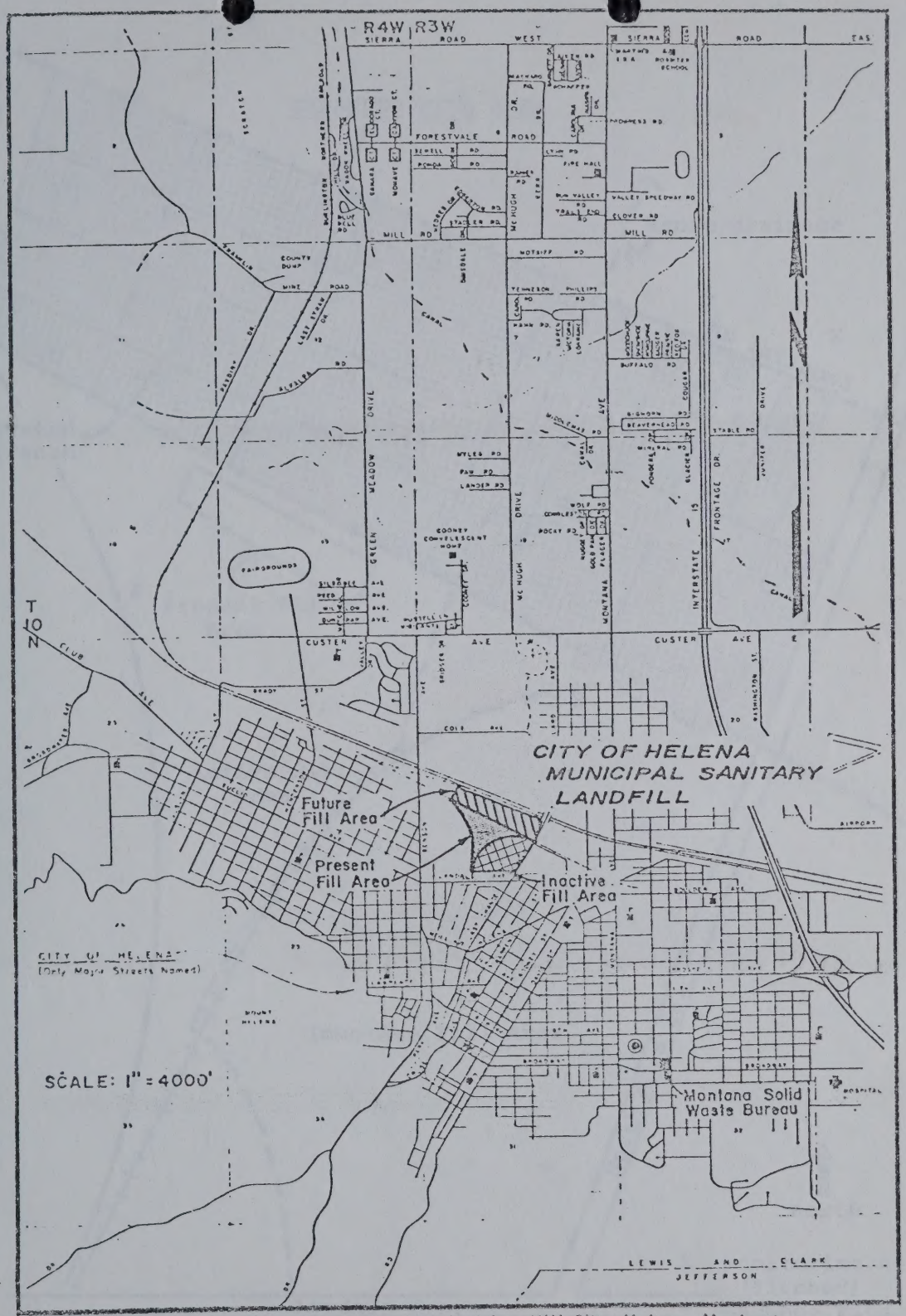
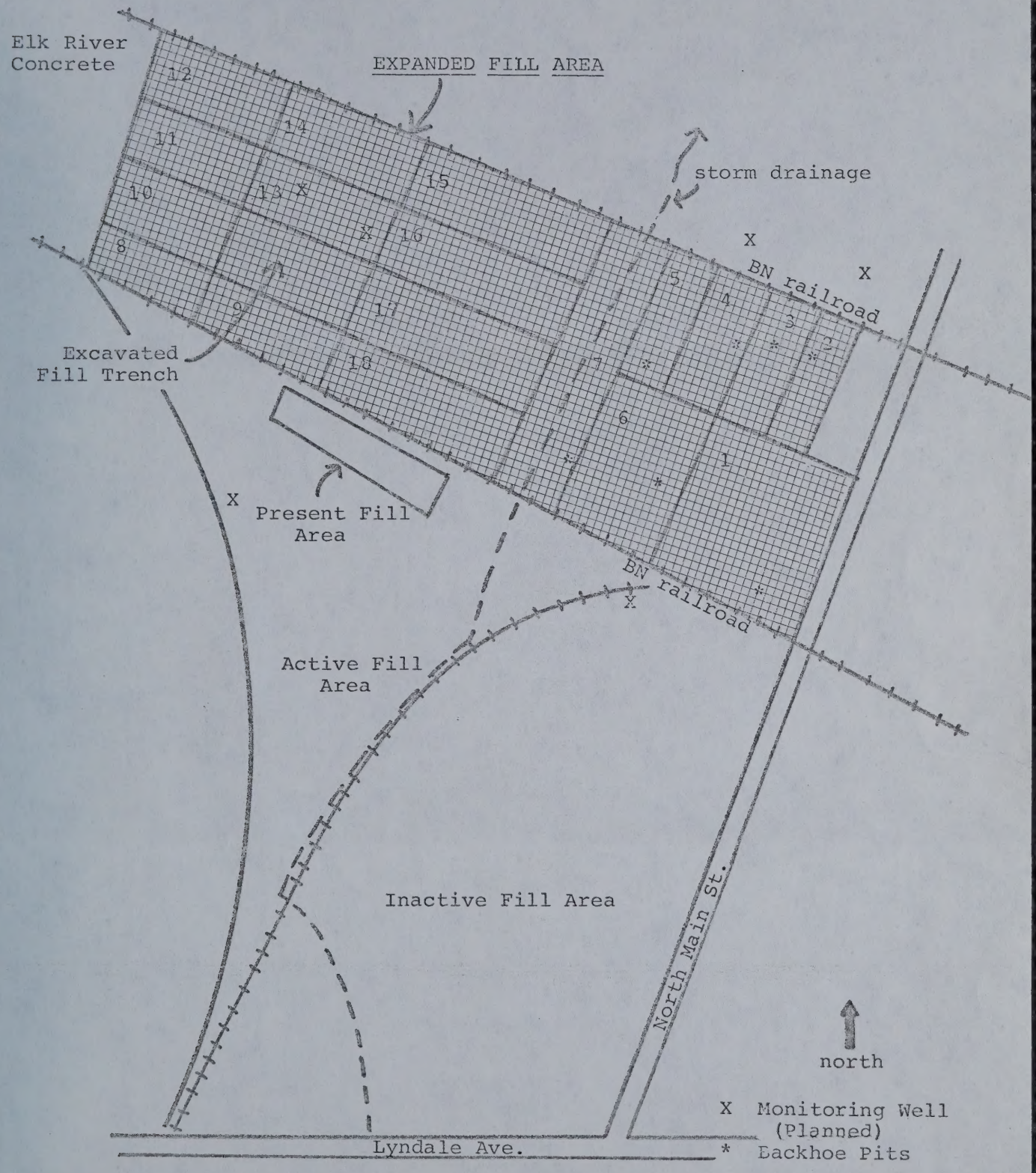


FIGURE 1. Location Map of Helena Municipal Landfill Site, Helena, Montana.


Elk River
Concrete
EXPANDED FILL AREA
12
11
14
10
13
15
8
16
9
17
18
7
6
5
4
3
2
1
storm drainage
BN railroad
BN railroad
Excavated
Fill Trench
Present Fill
Area
Active Fill
Area
Inactive Fill Area
North Main St.
Lyndale Ave.
north
X Monitoring Well
(Planned)
* Backhoe Pits

LdC - Helena

HELENA FAMILY YMCA
1200 N. Last Chance Gulch, Helena, Montana 59601 442-2386

August 31, 1982

Duane Robertson
Solid Waste Bureau
Cogswell Building
Helena, MT 59620

Dear Mr. Robertson,

Our Executive Committee will be meeting September 2, 7:00am at the Park Plaza to consider the landfill park. We would like to have you present. Our prime concern with your bureau is related to requirement in operation of the area. Perhaps a letter similar to the one recently sent to the city would be appropriate.

Hope you can be present on the 2nd.

Thanks,

Chuck

Chuck Micklewright

COM:pgm

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SEP 1 1982
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

ROBERT PECCIA & ASSOCIATES
Planners - Engineers - Designers
P.O. BOX 4518 810 HIALEAH COURT
HELENA, MONTANA 59604 406/442-8160

March 22, 1982

RECEIVED
MAR 29 1982
PUBLIC WORKS

Mr. Richard Nisbet, Director
Public Works Department
City of Helena
316 North Park
Helena, MT 59623

Dear Dick:

At your request, we have developed a preliminary Scope of Work for preparing a final use plan for the new landfill area located north of the Burlington Northern Railroad tracks. As we discussed, the scope of work is primarily structured to identify the least-cost and most practical method of meeting the State of Montana's minimum permeability and groundwater monitoring requirements.

We have summarized and enclosed herein the major work elements that we feel would be appropriate for developing a final use plan for your new landfill area. Obviously, the levels of input and the corresponding fee for each work element can vary substantially and are dependent upon several factors including the degree of technical assistance desired as well as the availability of in-kind services and work previously conducted. Because of this, we suggest that once you have reviewed the enclosed information, we should get together and develop a final scope of work that will delineate in more detail the work, responsibilities and corresponding fees for each work element.

The estimated fees for conducting the work summarized herein are indicated on the attached Scope of Work. These fees are based on the City of Helena providing all site surveys as well as all soils testing and drill log information identified as necessary. After reviewing your project file for the area, it appears that most of the necessary surveys and soils tests have been conducted and therefore additional surveying and testing would probably be minimal.

Our firm is most pleased to submit this preliminary scope of work and estimated fees to the City of Helena. As previously indicated, we would be happy to meet with you at your convenience to discuss in more detail the work elements depicted herein. If you have any questions or desire additional information, please call.

Very truly yours,

ROBERT PECCIA & ASSOCIATES

Barry E. Damschen

Barry E. Damschen, P.E.
Vice-President

BD/gp
Enclosure

CITY OF HELENA LANDFILL ANALYSIS

SCOPE OF SERVICES

WORK ELEMENT	ESTIMATED FEE
1. Review available information and develop a base map of the site depicting the existing topography. Develop cross sections of the area indicating existing ground elevations, bedrock, water table, etc., and plot on the cross sections the base elevations in which waste can be placed.	$2,800
2. Conduct a water balance analysis and develop the least-cost and most practical final cover alternative to meet applicable State permeability requirements.	$1,500
3. Identify the most applicable soil/waste ratio and develop a final use plan indicating final elevations and drainage control structures. Plot the final use elevations and drainage control structures on the base map and cross sections developed in Work Element 1.	$1,800
4. Prepare a landfill sequence plan indicating the location and the base and final elevations of each separate trench or fill area. Estimate the approximate time frame in which each trench would be utilized.	$1,800
5. Review available hydrogeologic information on the site and the area immediately adjacent to it. Develop a groundwater testing program including the location and depth of monitoring wells as well as a minimum and maximum water quality testing program and corresponding budget.	$2,800
ESTIMATED TOTAL FEE:	$10,700

CITY OF HELENA LANDFILL ANALYSIS

SCOPE OF SERVICES

WORK ELEMENT	ESTIMATED FEE
1. Review available information and develop a base map of the site depicting the existing topography. Develop cross sections of the area indicating existing ground elevations, bedrock, water table, etc., and plot on the cross sections the base elevations in which waste can be placed.	$7,500
2. Prepare a water balance analysis and develop the least-cost and most practical final cover alternative to meet applicable State permeability requirements.	$1,500
3. Identify the most applicable soil/waste ratio and develop a final use plan indicating final elevations and drainage control structures. Plot the final use elevations and drainage control elevations on the base map and cross sections developed in Work Element 1.	$2,000
4. Prepare a landfill sequence plan indicating the location and the base and final elevations of each separate trench or fill area. Estimate the approximate time frame in which each trench would be utilized.	$1,500
5. Review available hydrogeologic information on the site and the area immediately adjacent to it. Develop a groundwater testing program including the location and depth of monitoring wells as well as a minimum and recommended testing program and corresponding budget.	$2,500
ESTIMATED TOTAL FEE	$10,500

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201
COGSWELL BUILDING

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

August 2, 1982

Mr. Dick Nisbet
Director of Public Utilities
City of Helena
City-County Building
316 N. Park
Helena, MT 59623

Dear Dick,

Attached is a copy of the Hydrological Evaluation of the Helena Municipal landfill, written by Hydrometrics. The staff of the Solid Waste Management Bureau agree with the recommendations contained in the Hydrometrics report concerning future development of the inactive fill area, active fill area and the landfill expansion area. Please review the Hydrometrics report and seriously consider the outlined recommendations.

Referring to my letter of February 23, 1982, we require that an engineered plan and monitoring program must be completed and in place prior to use of the landfill expansion area for solid waste disposal. I understand that because of the disposal of construction wastes from hail damage repair work, the life of the active fill area has been significantly reduced. Therefore, I suggest we get together in the very near future to discuss this matter and the recommendations contained in the Hydrometrics report.

If you have any questions or comments, please contact us at anytime. We look forward to meeting with you soon.

Sincerely,

Duane L Robertson

DUANE L. ROBERTSON, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

DLR:JLA:vc
Encls.

Helena landfill

Communications continued

Commissioner Beaton asked that if Ms. Collins knew of anyone who she thought would be good in this particular role that she urge them to apply.

Dorothy Stevens, 520 3rd Street, came forward and asked that the Commission consider putting up a marquee on the Civic Center to advertise functions going on so people would know what was happening. Mayor Ritter asked that she approach the Civic Center Board on this particular item.

Business License Fee Waiver

Bob Liston, owner of Budget Tapes & Records, came forward and Mayor Ritter stated we would hear his request now (item #11 on the agenda) instead of making him wait. Bill Verwolf, Finance Director, gave the staff report stating that the Ordinance requires that a Going out of Business License be acquired before the sale and the advertisements for the sale carry the dates and the City License number in that ad. The City Commission has the authority to waive the fee if it so desires. The recommendation of the City Trade Commission was to waive the fee, the vote being three to one with one member being absent.

Mr. Liston stated he was not aware of the need for a license for going out of business, he was going out of business because he was not making money and would have no money to pay the license fee.

motion

Commission Johnson moved to waive the fee. Commissioner Duncan seconded.

discussion

Commissioner DaSilva stated he felt that ignorance of the law was not acceptable and would vote for it this time but if they come after the fact again he would not even consider it.

Commissoner Beaton stated in the light of Commissioner DaSilva's comments she would vote against this motion.

Mayor Ritter indicated that as long as it was the wish of the Commission not to hear "after the fact" requests he would instruct the staff not to bring these before them.

Manager Erickson stated from the legal standpoint we would be required to bring the requests to the Commission but he would in the future place it under the Consent Agenda and the Commission could remove it from there if they so desired.

question

Commissioners Duncan, DaSilva, Johnson and Mayor Ritter voted aye; Commissioner Beaton voted nay. Motion carried four to one.

A five minute recess was called at 8:45 p.m.

YMCA Soccer Field Proposal

YMCA PROPOSAL FOR SOCCER FIELDS AT LANDFILL SITE.

Staff Report. Bill Mulcahy, Director of Parks & Recreation, gave the Staff report. He commended the YMCA Staff for the ground work and getting the proposal together. He stated the Staff problems: A. Land; Part of the land is owned by the National Guard. No action can be taken until appraisals have been made of both pieces of land. Ownership of the land must be established before proceeding with the project. B. Well; It was the feeling of the staff that a well in that area may not be feasible based on the recent water study completed by Max Botz of Hydrometrics. Another problem would be water rights. C. Grading; The Landfill Supervisor felt that a portion of the grading could be accomplished by his crew but a great deal of "shape up" would have to be completed with a bulldozer and would have to be contracted out to someone else. D. Topsoil; The City does not have the amount of topsoil suggested in the Y's proposal and would have to purchase another 1500 cubic yards of topsoil from someone, if that was our end of the bargain. E. Irrigation; This would have to be established and a very strict irrigation schedule be adhered to. The Solid Waste Management Bureau has indicated that excessive amounts of water will increase the methane production making the area unacceptable for public use. They stated it was extremely important to use the proper grass seed and minimal amount of water be used in order to control the methane gasses. F. Seed & Mulch; Staff would have to go with the recommendation of the Solid Waste Management Bureau on the type of grass seed that would be used and on a strict irrigation schedule. City Staff did make a committment of $13,000 which would be money that they have on hand, which is cash in lieu of funds, that could be used for the purchase of seed. G. Fencing; Staff had no problem with this. H. Parking; Staff recommended that a separate parking plan be developed. I. Engineering; The City Engineer and Public Works Director felt that the in kind services suggested could not be accomplished at this time due to lack of manpower. The Public Works Director felt that some of the Engineering firms in town would be willing to donate some of their time to help us with the engineering chores on the project and he would be willing to coordinate that effort. J. Management; Staff felt the management processes could be negotiated but any agreements would have to

YMCA Soccer Field Proposal cont.

address the methane problem and monitoring. It was suggested by Staff that they look to other groups to assist in this project. Mr. Mulcahy stated the Helena Soft Ball Association had called him and stated they would be willing to pitch in and help with the project if there would be a possiblity of additional soft ball fields on it.

Commissoner Beaton asked Mr. Mulcahy to clarify the status of the $13,000 (or $15,000), has that been committed? Mr. Mulcahy said it had not been committed.

Mr. Russ Cravens, 472 Russell Lane, stated he was here to speak in behalf of the YMCA, however, he was not representing the YMCA. He spoke about the need for soccer fields in the Helena area to accomodate the growing sport. He stated they were proposing building directly west of the YMCA, six soccer fields of varying sizes to accomodate the age groups. He stated the YMCA was also interested in developing the area as a general park area. He spoke about the dust problems created by the landfill. Mr. Cravens stated the National Guard had indicated their support of the program and the use of the area as soccer fields as well as the paving of the parking lot. Addressing the concerns of the Staff he stated they had talked to other people regarding the well who believe there is water available there. With water being available from the City he didn't feel that was a problem that couldn't be overcome, with or without a well.

Mayor Ritter asked Mr. Cravens, since he was not representing the YMCA, that when he addresses the comments is he commiting the YMCA, just so the record indicates. Mr. Cravens stated he believed he was and if he spoke out of line he was sure the people from the YMCA would let him know.

Mr. Cravens stated they were under the impression that the City had the equipment and manpower to handle the grading. They were not proposing that the City spend $10,000 to hire somebody else to do that. He stated they would like to propose that the City take care of the piece of that that they can in an in kind manner and they would see what they could do about finding the resources to take care of any additional grading work that might be done. He further stated that they were under the impression that the City had the topsoil to meet the demand for the area and would propose that the City would go ahead with any plans that they could to deliver that topsoil and help them with that. And if they could find the additional topsoil the City would perhaps agree to haul the topsoil to the area. He stated that the irrigation was a concern to them, they did recognize the potential problem but felt it was a management problem that could be solved by prudent management of the irrigation. He stated they would propose, with Commission approval, that they would continue to work with the Staff and other experts needed to come to the right kind of decision. Discussing the seed and mulch he stated the Soil Conservation Service looked at that again and did come up with the bluegrass proposal. The YMCA felt this was a better grass for playing soccer on. He spoke on the parking and engineering, stating they would take any engineering help the City could provide but have solicited other type of engineering help. He stated that the negotiation of the lease is what they are here to do and their proposal states that they would like to lease the entire area and would manage it. If the City could mow it it would certainly be within what they were looking for from the City. In summing up he stated that the proposal is designed to give them some soccer fields that are needed and having them next to the "Y" is certainly a management value. He stated they didn't believe there was anything there that didn't significantly improve that piece of property, which is adjacent to one of the transportation hubs of the community and is currently an eyesore. Mr. Cravens felt that although the Commission might not have all the resources at its disposal to take care of a lot of things that are going to improve the quality of life in Helena he did think through some creativity and cooperation with the YMCA that a lot can be done for the downtown area.

Richard Mayer, landscape architect with FWP says blue grass is good for heavy use areas but it requires approx 20" of precipitation to grow normally. Helena gets about 11". That means an additional 9"/season via irrigation. There are other grass varieties which require less moisture but their resistance to wear quality is may be inferior.

Mayor Ritter asked any persons in the audience that supported the the proposal to please stand. Eight persons from the audience rose in support.

James Buck, 154 W. Lyndale, stated he lived immediately in the vicinity of where this project is coming together and supported the proposal. He spoke of the conditions of the Lyndale viaduct and his concerns with vagrants residing there and local delinquents passing through that area leaving their trash. He was concerned about the athletes being harrassed when passing by the area or being injured by the broken glass.

YMCA Soccer Field proposal cont.

Commissioner DaSilva discussed some of the problems that could be if the City stayed involved with the project. He suggested that the City sell the land to the YMCA for $1.00 and contribute the labor to help with the grading, contribute the money for the seeding and let them run with the program. He asked Manager Erickson's response to this.

Mayor Ritter spoke about his concerns about the liability of the City in these types of agreements. He agreed with Commissioner DaSilva and stated he would like to see it sold with the City being released from any liabilities to that land. He stated he would be willing to spend the money for the seeding but would want a date of seeding written in the contract so that Solid Waste could not come back to us if it were not done. He had no problems with supporting the grading of the property by the City if it did not include having to purchase any equipment or contracting any of the work.

Commissioner Johnson stated he agreed with the opinions of Commissioner DaSilva and Mayor Ritter. He said that since we were going to do the work anyway why not give them the money and help, get everything in an agreement and let them go with it.

Commissioner Beaton was concerned about the proposal and asked for Manager Erickson's opinion.

Manager Erickson stated that the first thing that would have to be done would be to determine the amount of right-of-way needed for various transportation improvements in the area and not give it away. Secondly a determination would have to be arrived at with the Solid Waste Bureau of the requirements they have, and maybe they would not have as many for the YMCA as they do for the City. He spoke about the grading that is needed and the water rights, which he stated is a time consuming thing. He stated the City was not in any position to provide anymore topsoil than what is at the airport, nor to haul it. He stated they were certainly welcome to use the City water, but it would be to their best interest to pursue a well for irrigation. He reiterated a couple of steps that the City had taken, step #1 was a memo from Dick Nisbet to the Street Superintendent advising him that no more snow could be stored at the landfill site due to methane gas. Step #2 is that the building would be moved and the rough grading would be done at no cost to anyone. The City Staff supporting the use of cash in lieu of funds, Mr. Erickson stated that that area is an image area in the City of Helena and felt it would be a good use. He stated the City Attorney would have to determine how the use of these funds could be resolved legally. Mr. Erickson stated that the grass variety is very important. He further stated that one of the greatest concerns of the City is that no additional buildings be built there without an express "hold harmless" agreements to the City. He felt the City didn't need anymore problems or the responsibility of monitoring the levels of methane gases. He stated that we have to look at the access rights of all parties, i.e. the National Guard and the subsequent access rights of the YMCA in the context of the future expansion of North Main. He felt, withstanding all of that, an agreement could be worked out.

motion

Commissioner DaSilva moved that the Commission direct the City Manager to work out such an agreement with the YMCA. Commissioner Duncan seconded.

discussion

Mayor Ritter asked if the YMCA would accept this piece of land hearing the various concerns that the Commission has indicated and Mr. Erickson has stated. There would be no use in going to the staff if the YMCA had any problems with this. He further stated that all the "hold harmless" agreements are going to have to be in there, all of the prior agreements made by the Commission re: the Transportation Plan, access to all the various areas have got to be in there and the City is held harmless forever once they accept title to the land.

Mr. Micklewright, YMCA Staff, stated that they had a Board of Directors that makes these decisions and would have to officially get their approval. He stated he thought it was a win/win situation, the City needs that area cleaned up and the YMCA Board seems to be excited about being a part of it and making it happen. He stated the kids are going to be the winners.

City Attorney Sherlock stated the City needs to check out the deed for the property, if we receive property for a specific purpose it cannot be disposed of without having an election.

Commissioner DaSilva was asked to clarify the motion and what exactly would the City be expected to do. He stated it was his feeling that the City was going to grade it and seed it anyway so that is a "given" and as far a future mowing that is negotiable. Mayor Ritter stated he would not support the motion if there is any kind of further expectations of the City.

Commissioner Dustin stated that the City needs to check out the deed for the property. If we receive property for a specific purpose it cannot be disposed of without having an election.

Commissioner Dustin was asked to clarify the motion and what exactly would the City be committed to do. He stated it was his feeling that the City was going to grant it and seed it anyway so that it "always" and as it a future meeting that is important. Mayor Pitter stated he would not support the motion if there is anything in expectations or obligations.

YMCA Soccer Field Proposal cont.

Manager Erickson asked if the motion was that the City would spend the $15,000 for grass seed, haul the dirt from the airport and do up to $10,000 worth of grading, in kind service with the equipment we have. Mayor Ritter replied that that would be it.

Commissioner Beaton stated she understood that no more than the $15,000 was to be spent and that she would support no more of an expenditure than that.

question

Commissioners Duncan, DaSilva, Johnson and Mayor Ritter voted aye. Commissioner Beaton voted nay. Motion carried four to one.

Resolution for Construction and issuance of Sewerage System Revenue Bonds Res. #9414

RESOLUTION DIRECTING THE CONSTRUCTION OF IMPROVEMENTS AND AUTHORIZING AND DIRECTING THE ISSUANCE OF REVENUE BONDS TO PAY THE COSTS OF THE MUNICIPAL SEWERAGE SYSTEM FOR THE CITY OF HELENA.

Staff Report. Bill Verwolf, Finance Director, stated that this Resolution had been prepared by a bond council for D.A. Davidson Co. and he would recommend only one change, which had been cleared with the bond council. He asked that Section 5.10 on page 19, reading that the billing would be monthly, be changed to read the billing would be done bi-monthly since we do our billing every other month.

motion

Commissioner Johnson moved to approve the Resolution directing the the construction of improvements and authorizing and directing the issuance of Revenue Bonds to pay the costs of the Municipal Sewerage System for the City of Helena, with Mr. Verwolf's change. Commissioner DaSilva seconded. All voted aye, motion carried. Res.#9414

Report on Capital Improvement Fund

Mr. Verwolf gave the report on the Capital Improvement Fund and Proposed Uses, asking that the Commission approve his recommendation that the balance of the fund, $71,721.79, be transferred to the Shop Revolving Fund to eliminate the cash shortage in that fund and allow it to operate on a current cost and a current reimbursement from the operating funds of the City.

Commissioner Johnson asked if that would zero out the shop? Mr. Verwolf stated it would bring the shop to a position of being zero, not in the red and not in the black.

motion

Commissioner Johnson moved to approve the recommendation of Mr. Verwolf to transfer $71,721.79 from the Capital Improvement Fund to the Shop Revolving Fund. Seconded by Commissioner DaSilva. All voted aye, motion carried.

Landfill Permit Survey Report

Don Lewis, Superintendent of Sanitation and Shops, gave the report stating that he felt the survey was very successful. He said they had issued 756 to City residents, 111 non-resident pickups and 18 non resident autos for a total April revenue of $184.50. He stated he felt this should be done every year.

motion

Commissioner DaSilva moved to acknowledge the report. Commissioner Duncan seconded. All voted aye, motion carried.

CONSENT AGENDA:

Mayor Ritter stated that he had reviewed the claims and indicated that all claims should be paid.

a. Claims
b. Resolution regarding Relationship of SID #376 to the Revolving Account.
c. Lease Agreement with Lewis & Clark County for Court Space.

motion

Commissioner Johnson moved approval of the Consent Agenda. Commissioner DaSilva seconded. All voted aye, motion carried.

Consider Addition Allocation of Section 8 moderate Rehab.

Don Kerns, Director of Rehab Loans & Grants, gave the staff recommendation. He stated he had been approached by a developer, Mr. Pavlonnis of Great Falls, who had uncovered that there is available to the City of Helena 10 additional units of Section 8 Rehab. Mr. Kerns stated he had done research on the subject and there is the availablity of the ten units and Mr. Pavlonnis has all the financing necessary to develop the project. However, Mr. Kerns stated that there had been some concerns by the Helena Housing Authority that maybe the City is developing our Section 8 program a little too rapidly, even though they approved the request. Mr. Kerns stated that the City is reimbursed for the time the Staff, including the Building Department, spends on the projects. He stated that there had been other developers who had, from time to time, requested an allocation of Section 8 monies from

L+C - Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201
COGSWELL BUILDING

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

February 23, 1982

Dick Nisbet
Director of Public Utilities
City of Helena
City-County Building
316 N. Park
Helena, MT 59623

Dear Dick;

In our past few meetings with the representatives from the City of Helena and Peccia and Associates, it has become apparent that there is some confusion about what, exactly, the city must do to operate the Helena landfill in compliance with the current state and federal regulations and guidelines.

In order to make sure that we all understand exactly what is currently required and will be required in the future, I thought it would be best to address these requirements by letter.

The Helena city landfill is located in Last Chance Gulch in soils of extremely high permeabilities, and is underlain by shallow bedrock and relatively shallow ground water zones. The combination of these factors presents a high potential for leachate production and subsequent ground water contamination.

While these factors do not preclude the continued use of the area as a sanitary landfill, they do make future ground water protection a critical factor in continued operation.

We know that, in the past, excavated, high permeability soils have been used as cover materials. Undoubtedly, these soils do little to minimize infiltration of water into the buried solid waste. Since a comprehensive ground water monitoring program has yet to be established, we can only guess at what problems past practices may be creating.

As the landfill is expanded northward, we consider it essential to "engineer" the site to at least minimum landfill standards. Core samples of the expansion area have shown permeabilities approximately 5 times in excess of the minimum 1×10^{-3} cm/sec permeability required by the current solid waste rules. In addition, ground water in the central drainageway is very shallow.

February 23, 1982

Dick Nisbet
City of Helena

For these reasons, we will require that an engineered plan be developed to allow landfilling in the expansion area. This plan must provide the same degree of ground water protection as a minimum of 10' to 20' of 1×10^{-3} cm/sec soils. We will also require that a comprehensive ground water monitoring program be developed to insure the performance of the engineered system. This engineered plan and monitoring program must be completed and in place prior to use of the expansion area for solid waste disposal.

I think it's important to emphasize that these measures will only provide minimum protection. It will be essential to incorporate good operating practices in order to minimize potential contamination problems.

For example, some of the operating requirements would include:

1) Minimizing surface water infiltration into the buried refuse, and;
2) Restricting the kinds of materials accepted at the site to those wastes having the lowest possible moisture content. Specifically, the city must prohibit the disposal of septic tank pumpings or other liquid or semi-liquid wastes. Filter pressed sludges of high solids content may be accepted if an adequate amount of ground water protection is designed into the system at the start. Low solid sludges generated in the event of filter press breakdown, digester cleaning, etc., will not be acceptable unless additional protective measures are engineered into the disposal area.

I don't think any of us can underestimate the importance of adequately protecting the local ground water in the landfill area. Particularly in light of future, anticipated uses of the Helena Valley aquifier. We must all plan for the future as we discussed in past meetings. Should the monitoring program reveal previously undiscovered contamination, we will have to take steps to mitigate the affects of the contaminants. A properly engineered program instituted now may save thousands of dollars later.

I hope this letter clarifies requirements for continued use of the existing landfill. If you have any questions or we may be of any assistance, please contact us at any time. We look forward to reviewing your plans for expansion as soon as they are available.

Sincerely,

Duane L Robertson

DUANE L. ROBERTSON, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

DLR:JEL:vc

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201, COGSWELL BUILDING

STATE OF MONTANA

Telephone: (406) 449-2821

HELENA, MONTANA 59620

February 8, 1982

Mr. Dick Nisbet
Director of Public Utilities
City of Helena
316 North Park Avenue
Helena, Montana 59623

Dear Dick,

The City of Helena has requested that we give some guidance regarding whether or not anaerobically digested sludge could be landfilled during the winter, in lieu of land application.

Since we don't have a specific proposal to consider, I will try to address each of three possible plans:

1) Co-disposal of sludge and refuse at the main landfill,
2) Provision of a separate disposal area for sludge at the main landfill, or
3) Disposal of sludge at the existing sludge landfill north of the sewage treatment plant.

We are assuming, in each case, that the sludge would be filter pressed to at least 30% solids.

OPTION #1 - Co-disposal with refuse

There are both advantages and disadvantages to co-disposal at a landfill. Municipal sludge is, at best, a difficult material to handle. When it is worked in with refuse, little extra equipment is necessary other than the conventional landfill equipment. Trying to mix the sludge and refuse, however, can result in odors and problems with the sludge getting into and onto the tracks and the other working parts of the machinery. This creates extra cleaning requirements and can aggravate odor problems. Careful planning is required to make certain that the sludge is covered quickly and throughly, and adequate separation is maintained between the area the sludge is dumped and the area that is used by privately owned vehicles.

When a landfill is centrally located and surrounded by houses and businesses, odor problems can be critical, and becomes a major consideration.

OPTION #2 - Separate disposal area at the main landfill

Separate trench areas at the landfill can alleviate some of the odor problems, but requires more excavation and the movement of equipment from one area to another. Sludge, however, can be covered quickly and is kept separate from the public using the site.

Since the present landfill does not meet the applicable permeability and depth to groundwater regulations, some special considerations become involved.

The proposed expansion area for the landfill exceeds the minimum permeability requirement by a factor of four. Current solid waste regulations require that the permeability in Class II landfills not exceed 1×10^{-3} cm/sec. Recent soil borings in the expansion area range from 4.6×10^{-3} to 6.6×10^{-3} cm/sec. In addition, some areas of the site may have groundwater levels high enough that it would be difficult to maintain the minimum 10 to 20 foot separation of garbage from seasonally high groundwater.

These limitations do not preclude the area from use as a Class II landfill, however, as the regulation does allow for engineering sites to meet equivalent degrees of groundwater protection through the use of clay caps, liners, etc. An adequate engineering plan will also include a comprehensive monitoring network to insure the integrity of the equivalent methods selected for using the site.

Co-disposal of sludge with the refuse will become, then, an operational problem only, since the site will be properly engineered for all Group II wastes. As we previously stated, however, the operational problems should not be underestimated.

Should the city decide to bury sludge in a separate area at the main landfill, the same engineering requirements will exist. In other words, some method must be developed to insure that the groundwater would receive the same degree of protection as is provided by 1×10^{-3} cm/sec. soils and a 10 to 20 foot separation to groundwater.

OPTION #3 - Disposal of sludge at the sludge landfill near the STP

Basically, the same requirements exist in this area as would exist in a separated area at the main landfill. The site must be "engineered" to meet equivalent groundwater protection standards. Obvious advantages would be the shorter haul distance and the greater distance to residences and commercial businesses. A big disadvantage is that additional equipment would be required to dig trenches and to cover the sludge daily.

In addition, a more comprehensive monitoring network will probably be necessary for this location, since it was originally approved for air dried sludge with 60 to 70% solids.

I think it is important to emphasize that engineering any of the locations is a matter of degree. If the site is intended to be suitable for more liquid sludges and greater quantities, a greater degree of protection will have to be "designed into" the fill area. For this reason, we would urge the city to make alternate provisions to handle liquid sludges in the event of filter press malfunction, digestor cleaning, etc.

I hope that my explanation is satisfactory for all three options. Once we receive more specific plans for what the city wants to do, we will be glad to help where we can.

Our major concern (as is yours, I assume) is contamination of groundwater. The odor problems associated with sludge disposal or utilization end when the practice is stopped but in the landfill scenario once the groundwater becomes contaminated it will remain so for years. The large production wells currently in use by the McHugh Trailer Park, the planned rapid infiltration irrigation system proposed at the golf course, and the feasibility plan to install a city well field down gradient from the landfill all add emphasis to the critical nature of preventing leachate contamination by the landfill whether sludge is added to the present refuse load or not.

If you have any questions, or we can be of further assistance, please call.

Sincerely,

James E. Leiter
Solid Waste Management Bureau
Environmental Sciences Division

JEL:cw

cc: Mark Weston, Water Quality Bureau, Cogswell Building, Helena, MT 59620
Alden Beard, Peccia and Associates, 819 Hialeah Court, Helena, MT 59601

ALAN DE HAAI

Black & Veatch CONSULTING ENGINEERS
1500 Meadow Lake Parkway, Kansas City, Mo. 64114, 913/967-2000

FOUNDATION & MATERIALS CONSULTANTS, INC.
829 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION East End - West of Drainage
STATION OFFSET
BORING NO. 3 GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 1/5/82 END 1/5/82 Pg of

DEPTH BELOW SURFACE FT.

0

5 — 8-11-14 — S.S. Sample - 5.0 to 6.5 - Silty Sand (Moist) w/s Gravels

10 — 50/.3 — S.S. Sample - 10.0 to 10.3 - Slough - Driving a Rock Ahead of the Spoon 12' to Water Bearing Sand

(A)

15 — 30-50/.2 — S.S. Sample - 15.0 to 15.2 - Water Bearing Silt & Sand

Permeability = 0.009 ft/min = 6.48"/hr.
= 4.6 x 10^-3 cm/sec (JA)

20

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 32
Drilling Method
(A) Auger (R) Rotary
(C) Core (T) Test Pit
Ground Water Level & Date
7-12-16 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
600 Shelby Tube Pressure-psi
Sample
65 Core Recovery %

CLASSIFICATION
Top Soil
Muck and Peat
Soil Rock
Gravel Extrusive
Sand Intrusive
Silt Sedimentary
Clay Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION Far East End Dump
STATION OFFSET
BORING NO. 4 GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 1/5/82 END 1/5/82 Pg of

DEPTH BELOW SURFACE FT.

0

0' to 5' - SILTY SAND

5

42-54.4 S.S. SAMPLE - 5' to 5.9' - GRAVELS

(A)

8' - TOP OF ROCK

10

50/0 S.S. SAMPLE - SLOUGH (ROCK)

PERMEABILITY = 0.010 ft/min = 7.2"/hr

15 = 5.1 x 10^-3 cm/sec (JA)

20

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 32
Ground Water Level & Date
7-12-16 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
600 Shelby Tube Pressure-psi
Sample
65 Core Recovery %

Drilling Method
(A) Auger (R) Rotary
(C) Core (T) Test Pit

CLASSIFICATION
Top Soil
Muck and Peat
Soil Rock
Gravel Extrusive
Sand Intrusive
Silt Sedimentary
Clay Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION Far West End Dump
STATION OFFSET
BORING NO. GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 12/23/81 END 12/23/81 PG. OF

DEPTH BELOW SURFACE FT.

0 — SILTY GRAVELS

5 — 36-50/.4 — S.S. SAMPLE - 5° TO 5⁹ - SILT & GRAVEL

(A)

10 — 50/.4 — S.S. SAMPLE - 10° TO 10⁴ - SILTY GRAVEL & COBBLES

15 — 44-50/.2 — S.S. SAMPLE - 15° TO 15⁷ - SILT & GRAVELS

(A)

20 — 50/.2 — S.S. SAMPLE - 20° TO 20⁸ - LIMESTONE BEDROCK

PERMEABILITY = 0.013 ft/min = 9.36"/hr

= 6.6 x 10⁻³ cm/sec (JA)

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 22
Ground Water Level & Date
7-12-14 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
600 Shelby Tube Pressure-psi
Drilling Method
(A) Auger (R) Rotary
(C) Core (T) Test Pit
Sample
65 Core Recovery %

CLASSIFICATION

Top Soil	
Muck and Peat	
Soil	Rock
Gravel	Extrusive
Sand	Intrusive
Silt	Sedimentary
Clay	Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION West End
STATION OFFSET
BORING NO. 2 GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 12/23/81 END 12/24/81 Pg of

DEPTH BELOW SURFACE FT.

0
5 — 50/.3 — S.S. SAMPLE - 5° TO 5³ - SANDY GRAVELS
(A)
10 — 40-50/.4 — S.S. SAMPLE - 10° TO 10⁹ - SANDY GRAVELS
15 — 27-33-41 — S.S. SAMPLE - 15° TO 16⁵ - SANDY GRAVELS
(A)
20 — 27-50/.4 — S.S. SAMPLE - 20° TO 20⁹ - SANDY GRAVELS

SOLID ROCK AT 22° FT.

25 PERMEABILITY = 0.010 ft/min = 7.2"/hr
= 5.1 x 10⁻³ cm/sec (JA)

30
35
40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 32
Ground Water Level & Date
7-8-16 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
600 Shelby Tube Pressure-psi
Drilling Method
(A) Auger (R) Rotary
(C) Core (T) Test Pit
Sample
65 Core Recovery %

CLASSIFICATION
Top Soil
Muck and Peat
Soil Rock
Gravel Extrusive
Sand Intrusive
Silt Sedimentary
Clay Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
820 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT: City of Helena
PROJECT: City Landfill
PROJ. NO.:
LOCATION: East End - West of Drainage
STATION: OFFSET:
BORING NO.: 3 GROUND ELEV.:

CORE BARREL: SIZE ____ TYPE ____ LENGTH ____
CASING: SIZE ____ DRIVE WT. ____ FALL ____
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. ____ I.D. ____

DRILLER: Kercher ENGR.: Nurse
DATE BEGIN 1/6/82 END 1/5/82 Pg ___ of ___

DEPTH BELOW SURFACE FT.

0

5 — 8-11-14 — S.S. SAMPLE - 5' TO 6' - SILTY SAND (MOIST) W/S GRAVELS

10 — 50/3 — S.S SAMPLE - 10' TO 10' - SLOUGH - DRIVING A ROCK AHEAD OF THE SPOON 12' TO WATER BEARING SAND

(A)

15 — 30-50/.2 — S.S. SAMPLE - 15' TO 15' - WATER BEARING SILT & SAND

PERMEABILITY = 0.009 ft/min = 4.6×10^{-3}

$\frac{.009\ ft}{min} \cdot \frac{60\ min}{hr} \cdot \frac{12\ in}{ft} = 6.48\ \frac{in}{hr}$

20

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 32
Ground Water Level & Date
7-2-16 Split Spoon Blows/ 6" Drive
Drilling Method
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
(A) Auger (R) Rotary
600 Shelby Tube Pressure-psi
(C) Core (T) Test Pit
Sample
65 Core Recovery %

CLASSIFICATION

Top Soil
Muck and Peat
Soil
Rock
Gravel
Extrusive
Sand
Intrusive
Silt
Sedimentary
Clay
Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION Far East End Dump
STATION OFFSET
BORING NO. 4 GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 1/5/82 END 1/5/82 Pg of

DEPTH BELOW SURFACE FT.

0 — 0° to 5° - SILTY SAND

5 — 42-54.4 — S.S. SAMPLE - 5° to 5.9 - GRAVELS

(A) — 8.5 - TOP OF ROCK

10 — 50/0 — S.S. SAMPLE - SLOUGH (ROCK)

PERMEABILITY = 0.010 ft/min 5 x 10^-3 7.2"/hr

15

20

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole — Ground Water Level & Date
Casing Blows 32 — 7-12-16 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
Drilling Method — (P) Pitcher Tube
(A) Auger (R) Rotary — 600 Shelby Tube Pressure-psi
(C) Core (T) Test Pit — Sample — 65 Core Recovery %

CLASSIFICATION

Top Soil	
Muck and Peat	
Soil	Rock
Gravel	Extrusive
Sand	Intrusive
Silt	Sedimentary
Clay	Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO.
LOCATION Far West End Dump
STATION OFFSET
BORING NO. 1 GROUND ELEV.

CORE BARREL
SIZE TYPE LENGTH
CASING
SIZE DRIVE WT. FALL
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. I.D.

DRILLER Kercher ENGR. Nurse
DATE BEGIN 12/23/81 END 12/23/81 Pg of

DEPTH BELOW SURFACE FT.

0 — SILTY GRAVELS

5 — 36-50/.4 — S.S. SAMPLE - 5° TO 5⁹ - SILT & GRAVEL

(A)

10 — 50/.4 — S.S. SAMPLE - 10° TO 10⁴ - SILTY GRAVEL & COBBLES

15 — 44-50/.2 — S.S. SAMPLE - 15° TO 15⁷ - SILT & GRAVELS

(A)

20 — 50/.2 — S.S. SAMPLE - 20° TO 20⁷ - LIMESTONE BEDROCK

PERMEABILITY = 0.013 ft/min = 6.6×10⁻³ 9.36"/hr

25

30

35

40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 22
Ground Water Level & Date
7-8-10 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
600 Shelby Tube Pressure-psi
Sample
65 Core Recovery %

Drilling Method
(A) Auger (R) Rotary
(C) Core (T) Test Pit

CLASSIFICATION
Top Soil
Muck and Peat
Soil Rock
Gravel Extrusive
Sand Intrusive
Silt Sedimentary
Clay Metamorphic

FOUNDATION & MATERIALS CONSULTANTS, INC.
839 Front St. Helena, Montana
STANDARD BORING LOG

CORE BARREL
SIZE ____ TYPE ____ LENGTH ____
CASING
SIZE ____ DRIVE WT. ____ FALL ____
SPLIT SPOON O.D. 2" I.D. 1 3/8"
DRIVE WT. 140# FALL 30"
SHELBY TUBE O.D. ____ I.D. ____

CLIENT City of Helena
PROJECT City Landfill
PROJ. NO. ____
LOCATION West End
STATION ____ OFFSET ____
BORING NO. 2 GROUND ELEV. ____

DRILLER Kercher ENGR. Nurse
DATE BEGIN 12/23/81 END 12/24/81 Pg ___ of ___

DEPTH BELOW SURFACE FT.

0
5 — 50/.3 — S.S. SAMPLE - 5° TO 5³ - SANDY GRAVELS
(A)
10 — 40-50/.4 — S.S. SAMPLE - 10° TO 10³ - SANDY GRAVELS
15 — 27-33-41 — S.S. SAMPLE - 15° TO 16⁵ - SANDY GRAVELS
(A)
20 — 27-50/.4 — S.S. SAMPLE - 20° TO 20³ - SANDY GRAVELS
SOLID ROCK AT 22° FT.
25 — PERMEABILITY = 0.010 ft/min 5 X 10⁻³ 2.2"/hr
30
35
40

LEGEND OF DRILLING AND SAMPLING OPERATIONS

Cased Hole
Casing Blows 32
Ground Water Level & Date
7-12-16 Split Spoon Blows/ 6" Drive
(A) Auger (W) Wash (H) Hand Cut
(P) Pitcher Tube
Drilling Method
(A) Auger (R) Rotary
600 Shelby Tube Pressure-psi
(C) Core (T) Test Pit
Sample
65 Core Recovery %

CLASSIFICATION
Top Soil
Muck and Peat
Soil
Rock
Gravel
Extrusive
Sand
Intrusive
Silt
Sedimentary
Clay
Metamorphic

L&C - Helen

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201
COGSWELL BUILDING

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

November 30, 1981

Bob Erickson
City Manager
City-County Bldg.
316 N. Park
Helena, MT 59623

Re: Landfill grasses

Dear Bob;

I contacted the Soil Conservation Service to get their recommendations as to suitable grass types for revegetating the Helena sanitary landfill. Their recommendation is as follows:

Types of grasses:

crested wheatgrass
stream bank wheatgrass (Sodar)
thick spike wheatgrass (Critana)

Use two types only and SCS recommends crested and streambank

Application rates:

crested wheatgrass 2½ to 3 lb/acre
streambank 5 lb/acre
(Double these rates for broadcast seeding)

Fertilizer:

Apply 20 to 25 lb/acre of phosphorus at time of seeding
After germination apply 25 lb/acre nitrogen

How to:

Use drills if possible and plant ½" to 1" deep.
Fall planting is desired.

The previous spring a mulch crop should be established - SCS recommends barley. This crop should be mowed so it won't produce seeds. Then in late fall the grasses should be sown and nitrogen fertilizer applied.

SCS Contact: Larry Hallsworth 587-5271 ext. 4332

These grasses are very drought resistant and should establish well. However, temporary sprinkler irrigation would enhance the stand if used.

I hope this information is useful to you and if you have any questions, please feel free to contact me or Mr. Hallsworth.

Sincerely,

Vic R. Andersen

VIC R. ANDERSEN
Solid Waste Management Bureau
Environmental Sciences Division

VRA:vc

L&C- Helena

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

SOLID WASTE MANAGEMENT BUREAU

TED SCHWINDEN, GOVERNOR

Room A201
COGSWELL BUILDING

STATE OF MONTANA

(406) 449-2821

HELENA, MONTANA 59620

September 9, 1981

D. W. Scott
Division Superintendent
Burlington Northern
Railroad Company
700 North Higgins
Missoula, MT 59802

Dear Mr. Scott;

The enclosed report on the Helena City landfill is self explanatory (see executive summary). This study was done at our request and with the full cooperation of the City of Helena. I'm sending the report to you because BN expressed concern just prior to the study about extending the city's lease and also because when the area is completed, I assume BN will get the site and contents back.

If you have any questions please feel free to contact this office.

Sincerely,

Vic R. Andersen

VIC R. ANDERSEN
Solid Waste Management Bureau
Environmental Sciences Division

VRA:vc
Encls.

NOTE: See RCRA Technical Assistance file for further correspondence

Solid Waste Management Bureau
Cogswell Building, Room A201
Helena, Montana 59601
Telephone: (406) 449-2821

July 3, 1980

Mr. Bill Rothenmeyer
Solid Waste Section
Region VIII, U.S. EPA
1860 Lincoln Street
Denver, CO 80295

Dear Mr. Rothenmeyer:

Re: Peer Match Request

We request Mr. Drinkwater of the Arkansas Solid Waste Office to be peer matched to three Montana cities late this summer. Mr. Drinkwater has considerable knowledge and experience involving incineration of municipal refuse. We presently have three Montana cities in advanced planning stages that are seriously considering incineration as the disposal method for their municipal wastes. Mr. Drinkwater's expertise will be of considerable value to these communities. If approved, our plan calls for flying him into Billings to visit briefly with the city engineer and sanitation supervisor. We will provide all further ground transportation. He will then go to Bozeman to talk to Livingston and Bozeman officials. From there, he comes to Helena where we will invite any other interested people to come and listen. He will then fly out of here.

Mr. Drinkwater has agreed to come to Montana and, in fact, has been requested to travel elsewhere in the United States for similar purposes.

If you need additional information to process this request, please contact me.

Sincerely,

Vic R. Andersen, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

VRA:lms

Bozeman, Livingston & Helena
Municipal Refuse Incineration

DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SOLID WASTE MANAGEMENT BUREAU
TED SCHWINDEN, GOVERNOR
COGSWELL BUILDING, ROOM A201
STATE OF MONTANA
(406) 449-2821
HELENA, MONTANA 59620

May 8, 1981

Mr. Stephen J. Orzynski, P.E.
Project Manager
Fred C. Hart Associates, Inc.
1320 17th Street
Denver, Colorado 80202

Dear Mr. Orzynski:

Re: Comments Regarding Landfill Gas and Leachate Monitoring, Helena, Montana, Draft Report

1) Report should stress that only one set of samples were taken and that a long-term monitoring (water) program should be implemented as soon as possible.

2) Conclusions drawn should be clearly qualified as to validity because of single sample data.

3) Nitrate and lead levels exceed the maximum contaminant levels for drinking water. These should be pointed out as an area of concern that needs to be monitored.

4) Methane recommendations should include automated monitoring systems be installed in the YMCA and the Armory.

Additional Test Data 5-4-81

Test Hole #	% LEL	% Gas
1	0	0
2	100	6 (14% 5-7-81)
3	0	0
4	40	30 (35% 5-7-81)
5	30	0
6	0	0
7	0	0

Sincerely,

Vic R. Andersen
Solid Waste Management Bureau
Environmental Sciences Division

VRA:ao

May 8, 1981

Mr. Stephen J. Gregwald, P.E.
Project Manager
Fred C. Hart Associates, Inc.
1720 17th Street
Denver, Colorado 80202

Dear Mr. Gregwald:

Re: Cascade Sanitary Landfill Gas and Leachate Monitoring, Helena, Montana, Draft Report

1) Report should stress that only one set of sampling was taken and that a long-term monitoring (water) program should be implemented as soon as possible.

2) Conclusions should be clearly qualified as to validity because of single sample data.

3) Nitrate and land levels exceed the maximum contaminant levels for drinking water. These should be pointed out as an area of concern that needs to be monitored.

4) Future recommendations should include automated monitoring systems as installed in the DNA and the Armory.

Audit and Test Data 5-6-81

Test Hole #	% LEL	% Gas
1	0	0
2	108	6 (1414 8-7-81)
3	0	0
4	40	30 (1554 8-7-81)
5	25	0
6	0	0
7	0	0

Sincerely,

Vic E. Anderson
Solid Waste Management Bureau
Environmental Sciences Division

Vic/ab

FRED C. HART ASSOCIATES, INC. • CONSULTANTS

MARKET CENTER • 1320 17TH STREET, DENVER, COLORADO 80202 • (303) 629-1818

April 23, 1981

Mr. Vic Andersen
Montana Solid Waste Management Bureau
Cogswell Building, Room A201
Helena, Montana 59601

Dear Vic:

Please find enclosed a draft copy of "Landfill Gas and Leachate Monitoring, Helena, Montana." I look forward to discussing the report with you and to receiving your formal comments.

If you have any questions regarding the report, please contact me or Marc Jewett.

Sincerely,

FRED C. HART ASSOCIATES, INC.

Stephen J. Orzynski

Stephen J. Orzynski, P.E.
Project Manager

SJO/pb

cc: with enclosure
Don Lewis, City of Helena
Bill Rothenmeyer, Region VIII EPA

PUBLIC UTILITIES DIVISION
City-County Building
316 North Park Avenue
Helena, Montana 59601
406/442-9920 Ext. 427

SANITATION
DEPARTMENT

City of Helena, Montana

February 11, 1981

Mr. Kirk Miller
General Manager
Normax Mining
P. O. Box 4969
Helena, Montana 59604

Dear Mr. Miller:

Your request to dispose waste from a dry portable toilet system at the City of Helena Landfill is approved with the following conditions:

1. That you register with the landfill scale operator each time you enter the landfill. This will authorize the City of Helena to bill you for disposal at the normal charge for non-residential waste matter.

2. That you notify the landfill equipment operator each time you use the disposal site to ensure proper and immediate cover of the waste.

The City will reserve the right to refuse access of this type of waste should a health problem occur.

Sincerely,

DON LEWIS
Superintendent
Sanitation Department

DL:jme

cc: R. A. Nisbet, Director of Public Utilities
Duane Roberston, Chief, Solid Waste Bureau

RECEIVED
FEB 19 1981
MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

FORM EPA-2 (12-13-79)

Form Approved: O.M.B. No. 158-S79017

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

OPEN DUMP INVENTORY REPORT

Section I – GENERAL INFORMATION

1. Date of determination (Enter month, day, and year): Month 05 Day 09 Year 80

2a. Is this an update of a previous form? (Mark (X) one): 1 [ ] Yes 2 [x] No

2b. Is this form being submitted to remove the facility from the open dump inventory? 1 [ ] Yes 2 [x] No

3. Facility Identification Number: State 30 Cnty/City 049 Place 0325 Assigned Site No. Assigned Facility No.

4. EPA Surface Impoundment Assessment No. (If applicable): State Cnty/City Place Category Site Impoundment

5. State Facility Identification Number (If applicable): 006

6. Name of facility: Helena Sanitary Landfill

7. Facility location

Street, road, or other location description: North of Lyndale Ave and east of Carroll College

City, town, or place: Helena State: MT ZIP code: 59601

County name: Lewis and Clark

8. Coordinates of facility location

Latitude: Degrees Minutes Seconds

Longitude: Degrees Minutes Seconds

9. Other legal description (If applicable): Range 03W Township 10N Section 30

10. Land owner

Name: City of Helena

Mailing address: Civic Center

City, town, or place: Helena State: MT ZIP code: 59601

11. Operator

Name: SAME

Mailing address:

City, town, or place: State: ZIP code:

EPA Form T8700-14 (3-80)

Section I – GENERAL INFORMATION – Continued

12. Type of facility
Mark (X) one

1 [X] Landfill
2 [ ] Surface impoundment
3 [ ] Land spreading
4 [ ] Other – Explain: _____

13. Primary types of waste received

1 [X] Municipal solid waste
2 [ ] Domestic sewage sludge
3 [ ] Industrial solid waste
4 [ ] Agricultural solid waste
5 [ ] Mining solid waste
6 [ ] Other – Explain: _____

Section II – NONCOMPLIANCE WITH FEDERAL CRITERIA

Indicate noncompliance with one or more of the following categories
Mark (X) each category for which a determination of noncompliance was made.

01 [ ] Floodplains
02 [ ] Endangered species
03 [ ] Surface water
04 [ ] Ground water
05 [ ] Application to food-chain cropland
06 [ ] Disease
07 [ ] Air
08 [ ] Gases
09 [ ] Fires
10 [ ] Bird/aircraft hazard
11 [ ] Access

} Safety

Section III – RESPONSIBLE STATE OFFICIAL

Name			Telephone: Area code / Number
Agency			
Mailing address *(Number and street)*	City	State	ZIP code

Comments

Helena - LSC

RECEIVED

FEB 1 1980

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

Monitoring System Designs for Nine Selected Sanitary Landfill Sites in Montana

David W. Bowen
Dept. of Earth Sciences
Montana State University
Bozeman, Montana
59715

Funding for this work was provided by the Montana Dept. of Health and Environmental Sciences, Solid Waste Management Bureau.

General Statement

Introduction

Buried refuse in a sanitary landfill is subject to leaching by percolating water derived from rain or snowmelt (Freeze and Cherry, 1979, p. 435) . The leachate produced from water moving through refuse contains high concentrations of inorganic contaminants (Griffin et al., 1976) and organic contaminants (Robertson et al., 1974). Garland and Mosher (1975) have cited several examples where groundwater pollution has been caused by landfills (Freeze and Cherry, 1979, p. 436).

The Montana Solid Waste Management Bureau has identified nine sites where contamination of surface or groundwater by landfill leachate is possible. Monitoring systems are needed for these sites. The purpose of the monitoring systems is to determine if contamination of ground or surface water is taking place. This report presents monitoring designs to achieve this purpose.

Groundwater

The existence of groundwater contamination from the sites will be evaluated with water samples from a group of observation wells. The wells should intersect the groundwater flow system above, in, and below each landfill site. If groundwater contamination is demonstrated, additional wells may be necessary to trace the movement of the leachate plume.

General Statement

Introduction

Burial refers to a sanitary landfill. It applies to landfill by precipitating water derived from rain or snowmelt (Fenwick and Doherty, 1979, p. 6-3). The leachate resulting from water seeping through refuse contains high concentrations of inorganic contaminants (Griffin et al., 1976) and organic contaminants (Robertson et al., 1976). Gerlach and Nelson (1976) have cited several examples where groundwater pollution has been caused by landfills (Fenwick and Doherty, 1979, p. 6-3).

The Montana Solid Waste Management Bureau has identified nine sites where contamination of surface or groundwater by landfill leachate is possible. Monitoring systems are needed for these sites. The purpose of the monitoring systems is to determine if contamination of ground or surface water is taking place. This report presents monitoring designs to achieve this purpose.

Groundwater

The existence of groundwater contamination from the sites will be evaluated with water samples from a group of observation wells. The wells should intercept the groundwater flow system above, in, and below each landfill site. If groundwater contamination is documented, additional wells may be necessary to trace the movement of the leachate plume.

During drilling, the wells should be carefully logged for lithology and the presence of water bearing zones by a competent hydrogeologist. The wells should be drilled 20 feet past the water table to accomodate fluctations in the water table. The pipes for the wells should be 4 inches in diameter so the wells can handle sampling and monitoring equipment. The holes should be cased with PVC rather than steel to avoid tainting the water samples with metals. The wells should be slotted or perforated to encompass the full range of water level fluctuations, surged, and packed with pea gravel to within 3 feet of the surface. The upper 3 feet of the hole should be packed with clay. The clay should be mounted around the casing to prevent surface water access. The casing should stand at least 2 feet above the ground surface and should be capped with a removable PVC cap to keep the well clean.

Surface Water

Where possible, surface water samples should be collected both upstream and downstream of the landfill site.

Sampling

Water samples should be collected at places and times when detection of contamination is most likely. Depth integrated sampling of streams is recommended. Although water-well pumping before sampling is desireable, this technique may produce some problems for low capacity wells. Excessive pumping could lead to measurement of water following flow lines that are not directly connected to the land-fill site. For this reason two samples are recommended:

During drilling, the wells should be carefully logged for lithology and the presence of water bearing zones by a competent hydrogeologist. The wells should be drilled 20 feet past the water table to accommodate fluctuations in the water table. The plans for the wells should be a inches in diameter so can relis non basis equipment and monitoring equipment. The holes should be drilled with 20% larger than usual to avoid caking the sides and with air. The wells should be situated or preferred to maximize the full range of water level fluctuations, screed and packed with gravel to within 3 feet of the surface. The upper 3 feet of the hole should be sealed with clay. The clay should be mounted around the casing to prevent surface water access. The casing should stand at least 2 feet above the ground surface and should be capped with a removable PVC cap to keep the well clean.

Sampling Water

Where possible, surface water samples should be collected both upstream and downstream of the landfill site.

Sampling

Water samples should be collected at places and times when detection of contamination is most likely. Depth integrated sampling of streams is recommended. Although water-well samples are better samples to collect, this technique may produce some problems for low capacity wells. Subsurface samples could lead to measurements of water following other lines that are not directly connected to the landfill site. For this reason two samples are recommended.

1. Run a specific electrical conductance profile at suitable intervals down the well. Then sample the highest conductance/temperature water more than one foot below the top of the water column. The top of the well has the highest possibility of contamination from material falling into the well.

2. Pump the well long enough to remove a volume of water equal to the volume of the casing. If possible the well should be pumped 30 minutes and then sampled, but this procedure may not always be possible if the well has a low specific capacity. Assessment of which technique should be used should be made on-site by the sampler and justified in the field notes. After the pumping, a depth integrated sample should be taken.

Sample handling is important, and should follow techniques recommended by the U.S. Environmental Protection Agency (1974); and Brown, Skougstad, and Fishman (1970).

Samples should be collected on or near four dates, at least during the first year of the sampling program: April 15, May 15, July 1, and October 1. Modification of this time framework may be necessary when more is learned concerning the timing of leachate production and movement at individual sites.

Little is known concerning the composition of leachate in a semi-arid environment. From work done in other areas, however, it seems that water quality analyses should include inorganic contaminants (Griffin et al., 1976), organic contaminants (Freeze and Cherry, 1979, p. 424-426; Robertson et al., 1974), and trace metals (Freeze and Cherry, 1979, p. 416-420; Dunne and Leopold, 1978, p. 735-739).

1. Run a specific electrical conductance profile at suitable intervals down the well. Then sample the highest conductance/temperature water more than one foot below the top of the water column. The top of the well has the highest possibility of contaminating from material falling into the well.

2. Pump the well long enough to remove a volume of water equal to the volume of the casing. If possible the well should be pumped 30 minutes and then sampled, but this procedure may not always be possible if the well has a low specific capacity. Assessment of which procedure should be used should be made on site by the sampler and justified in the field notes. After the pumping, a fresh integrated sample should be taken.

Sample labeling is important, and should follow recommendations by the U.S. Environmental Protection Agency (1979) and Brown, Skougstad, and Fishman (1970).

Samples should be collected on or near four dates, at least during the first year of the sampling program. April 15, May 15, July 1, and October 1. Modification of this site frame work may be necessary when care is taken to expand the timing of increase production and movement at individual sites.

Little is known concerning the accumulation of landfill in a semi-arid environment. Work was done in other areas, however, it seems that water quality analysis should include inorganic constituents (Griffin et al., 1976), organic constituents (Kerfoot and Cherry, 1976, p. 208-209; Kerfoot et al., 1976), and trace metals (Kerfoot and Cherry, 1977, p. 416-420; Lowe and Leopold, 1978, p. 236-239).

Site: Helena Sanitary Landfill

Location: SW 1/4, Sec. 19, T10N, R3W

Reason For Monitoring: The Helena sanitary landfill is located in highly permeable alluvial deposits. The alluvial deposits act as an aquifer throughout the Helena Valley. Water which enters will produce a leachate. This leachate will flow to the northeast and will enter the aquifer associated with the alluvial sediments.

Due to the high permeability of the surficial material at the site, the large volume of refuse which has been disposed at the site, and the potential for contamination of the alluvial aquifer, the Solid Waste Management Bureau selected the Helena sanitary landfill for the design of a monitoring system.

Sample Site Selection: The rationale for the selection of sample site is discussed under the General Statement.

Eleven observation wells are recommended for the monitoring of the Helena sanitary landfill (see figure 7). Those wells designated as primary sample sties are absolutely necessary for monitoring to be undertaken. Those wells designated as secondary sampling sites are highly recommended. Those sites designated as tertiary sampling sites would greatly benefit the monitoring program. However, if cutbacks had to be made due to budgetary constraints, the tertiary sampling sites should be the first to be omitted. The most desirable monitoring system for this site would include eleven wells.

Four surface water sampling sites are recommended to monitor surface water contamination from the Helena sanitary landfill. The two southernmost sampling sites give surface water quality before flowing through downtown Helena. The middle sampling site gives surface water quality after flowing through downtown Helena but, before flowing through the landfill. The northernmost sampling site gives surface water quality after the stream has flowed through the landfill site.

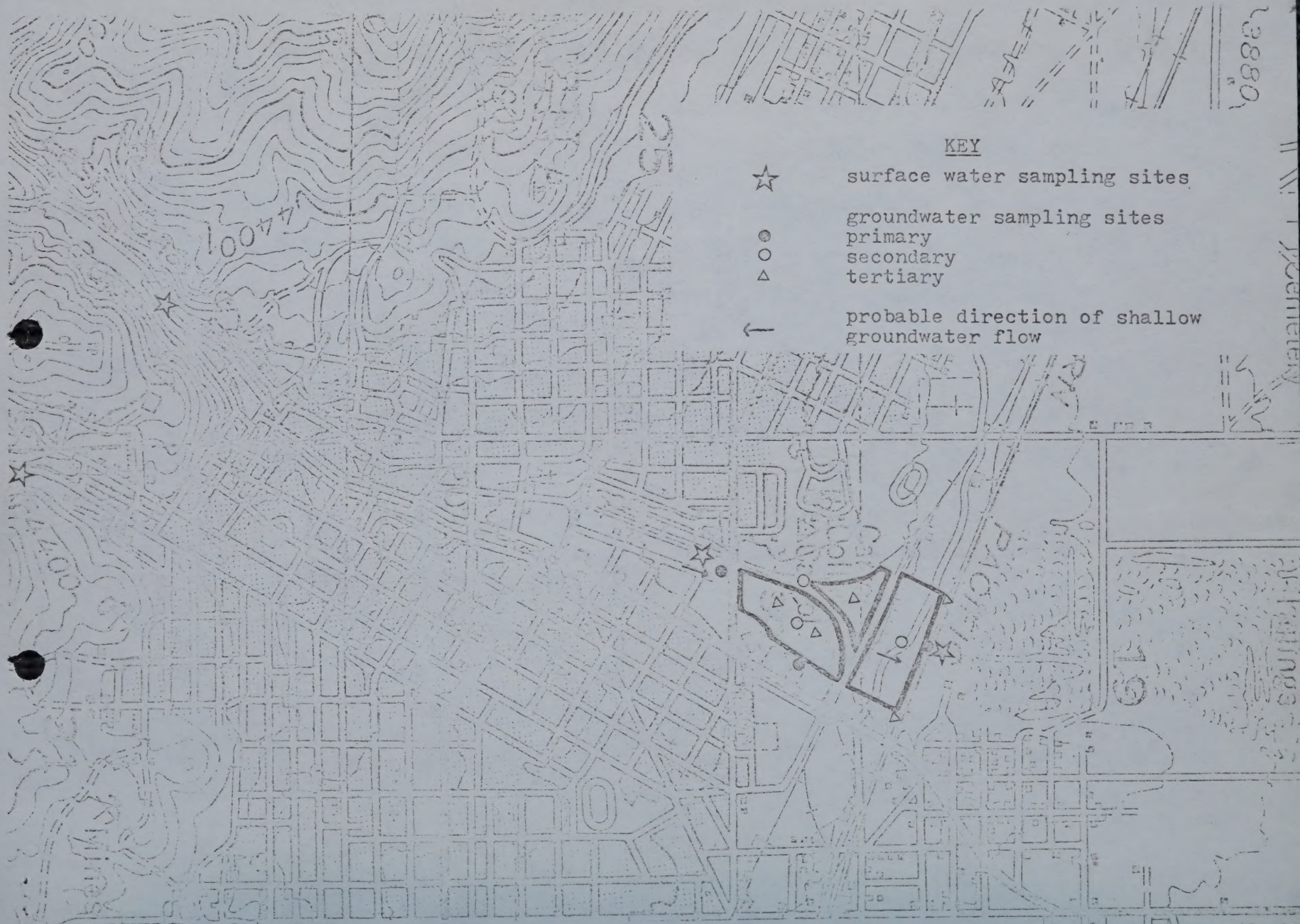


Figure 7: Base map for the Helena sanitary landfill site.

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, MT 59601
Telephone: (406) 449-2821

December 20, 1979

Mr. Gerald W. Knudsen, P.E.
Raymond Vail and Associates
11049 W. 44th Avenue, Suite 202
Wheat Ridge, Colorado 80033

Dear Gerry:

Enclosed are copies of two reports with information regarding the Helena sanitary landfill. These are "one and onlys" so please return them when you are through.

We also have a recent aerial photo of the site if you need it. If after going over these reports, you still hunger for information, please feel free to get in touch with us.

Sincerely,

Vic R. Andersen, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

VRA:ao

Enclosures ("Appraisal of the Quality of Ground Water in the Helena Valley, Montana" and "Helena Solid Wastes Betterment Project")

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, MT 59601
Telephone: (406) 449-2821

December 20, 1979

Mr. Gerald W. Knudsen, P.E.
Raymond Vail and Associates
11049 W. 44th Avenue, Suite 202
Wheat Ridge, Colorado 80033

Dear Gerry:

Enclosed are copies of two reports with information regarding the Helena sanitary landfill. These are "one and only" so please return them when you are through.

We also have a recent aerial photo of the site if you need it. If after going over these reports, you still hunger for information, please feel free to get in touch with us.

Sincerely,

Vic R. Anderson, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

VRA:sc

Enclosures ("Appraisal of the Quality of Ground Water in the Helena Valley, Montana" and "Helena Solid Waste Determinant Project")

City of Helena Methane Project

NOTE: See RCRA Technical Assistance file.

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, MT 59601
Telephone: (406) 449-2821

November 20, 1979

Mr. Gary Morgan
U.S. EPA
Waste Management Branch
Region VIII
1860 Lincoln Street
Denver, CO 80295

Dear Gary:

The Solid Waste Management Bureau received $4,000 supplemental funding last fiscal year to be used for methane/leachate work. Using the methane manual developed by the Intergovernmental Methane Task Force (which by the way, is about the only practical methane reference around), we have determined the Helena sanitary landfill is the best candidate for the project in Montana. The City has been working with us and is willing to donate some equipment and manpower. However, they, like us, have limited time and methane expertise. Again we have relied heavily on the task force manual and feel we need some additional technical assistance in laying out the project, i.e. location of well sites, well design, etc. The long-term goal of the project is to recover methane from the disposal site and use it as a supplemental fuel. In order to keep from initiating premature activities, we need to determine methane concentration, quality, distribution, etc. before any recovery can be accomplished. We, therefore, request technical assistance from EPA. We already have a pretty comprehensive data base to go from, but we need the extra expertise of someone to outline the project.

Any assistance you can give will be appreciated. Also, we only have one copy of the methane manual, and if you can round up a few extras for me, I would appreciate that, too.

Sincerely,

Vic R. Andersen, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

VRA:lms

July 11, 1979

Supplemental Funds for Helena City Landfill

Larry Wapensky, Solid Waste Section, SAH-WM

Jim Harris, EPA

As you know, we in the Regional office have had some communication with the Montana Solid Waste Bureau about studying possible leachate and methane problems from the Helena City landfill. We regard this as being a worthwhile project. Under Account Number W83808L00 and Appropriation Number 608/90103, $4,000 supplemental funds are available for this activity. If your office is in agreement, please amend either the Subtitle C or D sections of the State's Solid Waste Grant to reflect this supplemental appropriation for this project.

cc: Vic Anderson
Larry Gazda
Jon Yeagley

WAPENSKY:dcp:7/11/79

No Response
12/11/79
JSC

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, MT 59601
Telephone: (406) 449-2821

September 10, 1979

Mr. Bob Hanson
Public Works Director
316 North Park
Helena, MT 59601

Dear Mr. Hanson:

In recent months we have been reminded of the problems being experienced and the potential problems yet to be faced from the disposal of various types of hazardous waste materials. One repository for quantities of such materials has been and continues to be the sanitary landfill operated chiefly to serve for the disposal of domestic refuse. There has been very little study done to evaluate the effects of the co-disposal of small amounts of hazardous wastes with large volumes of mixed refuse in a sanitary landfill. The U.S. Environmental Protection Agency has searched its files of damage cases and determined that the intermingling of various hazardous wastes in small quantities with normal solid waste in a landfill appears to present little hazard. Damage incidents have apparently been recorded only where sanitary landfills have accepted large percentages of hazardous industrial wastes in their incoming solid waste. Based on this, the EPA has proposed to allow businesses and industries to deliver up to 220 pounds per month of hazardous wastes to sanitary landfills. Industries producing more than 220 pounds per month would fall under stringent hazardous waste regulations and would need to utilize special disposal facilities.

The Montana Department of Health and Environmental Sciences must decide whether to adopt this aspect of the EPA regulation or to develop a more conservative approach towards the disposal of hazardous wastes in sanitary landfills. To help us in this regard, I am asking you to take some of your time to convey information to us. We need to know what hazardous wastes you have routinely received at your landfill, what are the sources, what quantities, and what problems, if any, have been attributed to these waste materials.

If indeed the small percentage of hazardous waste received at a city sanitary landfill does not present any significant hazard or problem, we should not try to preclude such disposal. However, if hazardous wastes are creating significant problems at landfills, the problems need to be addressed.

Would you or your director of solid waste services please complete the attached questionnaire as completely as possible. If the questionnaire

is not adequate to fully describe hazardous waste disposal at the landfill, use the comments section to provide more detail. Please feel free to call me if you have questions regarding the type of information we are requesting.

Sincerely,

Roger C. Thorvilson, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

RCT:lms

Enclosure

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

xxxxxxxxxx
A. C. Knight, M.D.
Director

May 1, 1978

Mr. Tim J. Holte
2200 South 5th West, #1
Missoula, Montana 59801

Dear Mr. Holte:

Your April 24 information request has been forwarded to this office for response. The future intended use and/or reclamation of land is an important consideration for the construction and siting of any sanitary landfill. Most often this consideration is directed toward agricultural or recreational use. Probably the best example in the state of land reclamation by landfilling is found in Helena. The city of Helena maintains a major landfill operation near the city center, where marginal ground is being converted into a recreational park.

For your information, I am forwarding a copy of the "Montana Solid Waste Management Act" and its administrative rules. These regulations contain reference to land reclamation; but more importantly they list site classifications, environmental standards, and operational procedures for sanitary landfills. Also I am sending a copy of our bureau's newsletter which contains an article on the Helena reclamation project.

I hope that the enclosed information will be of assistance to you. If we can be of any further help, please write.

Sincerely,

William J. Potts, Information Officer
Solid Waste Management Bureau
Environmental Sciences Division

WJP /lb

Enclosures

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

A. C. Kright, M.D.
Director

May 3, 1978

Mr. Tim J. Holte
2800 South 5th West, #1
Missoula, Montana 59801

Dear Mr. Holte:

Your April 24 information request has been forwarded to this office for response. The future intended use and/or reclamation of land is an important consideration for the construction and siting of any sanitary landfill. Most often this consideration is directed toward agricultural or recreational use. Probably the best example in the state of land reclamation by landfilling is found in Helena. The city of Helena maintains a major landfill operation near the city center, where marginal ground is being converted into a recreational park.

For your information, I am forwarding a copy of the "Montana Solid Waste Management Act" and its administrative rules. These regulations contain reference to land reclamation; but more importantly they list site classifications, environmental standards, and operational procedures for sanitary landfills. Also I am sending a copy of our bureau's newsletter which contains an article on the Helena reclamation project.

I hope that the enclosed information will be of assistance to you. If we can be of any further help, please write.

Sincerely,

William J. Potts, Information Officer
Solid Waste Management Bureau
Environmental Sciences Division

WJP /jb

Enclosures

April 24, 1978
Tim J. Holte
2260 S 5th W #1
Missoula Mont

Department of Land Reclamation
Helena, Montana

Dear Sirs
I am looking into land reclamation in the Msla. valley. In piaticular I'm looking at sanitary landfills. Could you please send me any information, regulations, and standards the state of Montana has set. Especially on reclamation. Your help would be much apreciated.

Yours Truly,
Tim J. Holte

P.S. If you can't help me with this information, please pass it on to the appropreate depart ment. Thanks

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

OCCUPATIONAL HEALTH BUREAU
Cogswell Building
(406) 449-3454

A. C. Knight, M.D., F.C.C.P.
Director

April 6, 1978

Mr. Don Lewis
Civic Center
City of Helena
Helena, Montana 59601

Dear Mr. Lewis:

This letter contains the report of the investigation of the possible migration of methane gas from the Helena landfill.

The anaerobic microbes in a landfill biologically convert organic matter into carbon dioxide and methane. Depending on soil conditions, methane can travel considerable distances and accumulate under or in buildings. This accumulation can result in a fire or explosion if undetected. Methane, the major gaseous product of anaerobic conditions in a landfill, is much lighter than air and would normally disperse into the atmosphere if not confined.

The standards for occupational health generally refer to time weighted average concentrations of contaminants measured over a full work day. The standards pertinent to this report are:

Carbon monoxide	=	50 parts per million (ppm)
Oxygen	=	at least 18% by volume
Methane	=	a simple asphyxiant. The Lower Explosive Limit (LEL) of methane is 5.3% of methane by volume in air, or 100% of the LEL.

Data: March 31 and April 3

1. Last Chance Gulch Storm Sewer (25 feet inside the north end)

   CO = 1 ppm
   O_2 = 20.6%
   LEL = 0%

2. Disaster and Emergency Services Division, 1100 North Last Chance Gulch

   Sub-basement

   CO = 5 ppm; O_2 = 20.6%; LEL = 0%

Emergency Evacuation

CO = 2 ppm; O_2 = 20.6%; LEL = 0%

Area where sewer enters building

Methane = less than 5 parts per million or .0005%

Unfinished Sub-basement

CO = 2 ppm; O_2 = 19%; LEL = 0%; Methane = less than 5 parts per million

Sump in Basement Garage

O_2 = 20.6%; LEL = 0%; Hydrocarbons (Methane) = 100 parts per million - minor concentrations of vapors from gasoline, oil or disinfectant

3. YMCA

Basement under pool

LEL = 0%; O_2 = 20.6%; Methane = less than 5 parts per million

Sump pump manhole

Hydrocarbons (Methane) = Off scale initially, then leveled off to 700 parts per million

This area is completely sealed off from the outside for long periods of time. The decomposition of organic matter in the manhole results in the accumulation of hydrocarbon (methane) gas which cannot escape.

Running track

LEL = 0%; O_2 = 20.6%; Methane = 0 parts per million

Track sump

LEL = 0%; Methane = 0 parts per million

The above data indicate that no methane is entering the YMCA or the National Guard buildings from the landfill at this time.

Thank you for your cooperation.

Sincerely,

William A. Hooper

William A. Hooper
Industrial Hygienist

WAH:kh

cc: Vic Anderson
Mr. Clark, YMCA
Mr. Gilbertson, DES

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 442-6230

201 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601

Mr. Jim Driscoll
City Attorney
111 East Sixth Ave.
Helena, MT. 59601

March 13, 1978

Subject: unauthorized burial of construction refuse

Dear Mr. Driscoll:

Enclosed is a series of official field reports documenting discussions with the parties involved and explaining the chronology of events relative to the above mentioned problem. At this time no effort has been made to correct the situation.

It would appear that the Schmidt-Knudsen contracting firm is in direct violation, Section 847IL, of the city codes and has shown no effort to have this situation corrected. While it is apparent that Mr. McGaffick, who is under contract to Schmidt-Knudsen, did indeed cover most of the refuse that was under orders from Mr. Schmidt, this department feels therefore that the burden of correcting the situation should be placed with the contracting firm of Schmidt-Knudsen. It is felt that this matter should be turned over to the legal staff of the City of Helena for consideration of legal action.

We will be happy to answer any questions that you have relative to this matter, and would appreciate hearing from you as soon as possible. Thank you.

Sincerely,

Will Selser

Will Selser, R.S.
Director
Environmental Health Division

CC: Pat Tressler, Solid Waste Bureau
Matt Conery, Fire Marshall, City of Helena
Encl: City Attorney only
WS/bw

RECEIVED

MAR 15 1978

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 442-6230

201 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601

Mr. Wally Johnston
Economy Auto Paint
2300 Euclid Ave.
Helena, Montana 59601

September 6, 1977

Dear Mr. Johnston:

As of September 2, 1977, there still exists an open deposit of garbage and rubbish on porperty at 2300 Euclid Avenue, Helena.

Pursuant to Montana Law, Section 69-4003, R.C.M. 1947, you are hereby ordered to remove and properly dispose of this garbage and rubbish in an approved landfill site. This is the second notice from this department, and you are hereby given ten (10) days to comply with this order.

Failure to comply shall constitute a violation of this act under Section 69-4009: "Any person violating this act or regulations prescribed by the State Department of Health and Environmental Sciences under this act, shall be guilty of a misdemeanor and, upon conviction, shall be fined not less than fifty dollars ($50.00), nor more than five hundred dollars ($500.00). Each day upon which a violation of this act occurs shall be considered a separate offense.

If you have any questions, please contact this office.

Yours very truly,

Robert R. Johnson

Robert R. Johnson
Health Officer

cc/Solid Waste Bureau
County Commissioners, Art Woods

RRJ/LC/cp

RECEIVED

SEP 7 1977

MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES
SOLID WASTE SECTION

Lewis & Clark

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 442-6230

201 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601

Mr. Wally Johnston
Economy Auto Paint
2300 Euclid
Helena, Montana 59601

August 2, 1977

Dear Mr. Johnston:

An open deposit of garbage and rubbish has been noted on property at 2300 Euclid Ave., immediately behind the Economy Auto Paint building.

Pursuant to Montana Law, Section 69-4003 R.C.M., 1947; "Dumping in an unlicensed area is prohibited. No person, partnership, company, or corporation shall hereafter dispose of any garbage, rubbish or refuse in any place except as permitted under this act."

You are therefore requested to remove and properly dispose of these wastes within thirty (30) days of the writing of this letter. If you have any questions, please contact this office.

Yours very truly,

Les Cramer, R.S.

Les Cramer, R.S.
City-County Sanitarian

cc/Art Woods, County Commissioner
Terrence Carmody, Solid Waste Bureau

LC/cp

Helena - Lewis & Clark

Department of Health and Environmental Sciences

STATE OF MONTANA HELENA, MONTANA 59601

Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
Telephone: (406) 449-2821

XXXXXXXXXXX
A. C. Knight, M.D.
Director

June 27, 1977

Dear Interested Persons:

I would like to take this opportunity to encourage you to read carefully Senate Bill 200 (Solid Waste Management Act) and the proposed rules to implement the act, inasmuch as the law and rules will be affecting each of you in the near future. If you haven't received this material in a separate mailing, please contact me and I'll make sure you receive copies.

The most significant portion of this legislation deals with the classification and licensing of all refuse disposal areas. The classification deals specifically with the soils type and hydrogeology of the site; in essence, the physical capability of the site to prevent pollution problems. In most cases, the local Soil Conservation Service has been most helpful in supplying this information. However, any "professional engineer" is qualified to perform the analysis. The above information, along with an operation and maintenance plan addressing how waste will be handled at the disposal site, will be required before a license may be issued. Items to be considered when drafting an operation and maintenance plan are found on page 2 of the proposed rules for Senate Bill 200.

It must be stressed that an approved operation and maintenance plan must make provisions for the prohibition of open burning of refuse, compaction and covering of refuse after each day the site is open to the public, and control of the site to prevent unauthorized entry and dumping. At any properly operated and maintained site, hours of operation and days the site is open for dumping are rigidly controlled.

License application forms and final drafts of the rules will be forwarded to you after approval. Your prompt response will be appreciated.

If you should have any questions or comments, feel free to contact me.

Sincerely,

Paddy R. Trusler, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

PRT/lb

Hon. L. C. Allen
Mayor, City of Glendive
Glendive, Montana 59330

Hon. Clyde Gore
Mayor, Town of Hobson
Hobson, Montana 59452

Hon. Lewis Nelson
Mayor, Town of Grass Range
Grass Range, Montana 59032

Hon. Joseph Erchul
Mayor, Town of Hot Springs
Hot Springs, Montana 59845

Hon. Charles L. Lane
Mayor, Town of Lavina
Lavina, Montana 59406

Hon. John C. Bulen
Mayor, City of Great Falls
Great Falls, Montana 59401

Hon. J. C. Taylor
Mayor, Town of Hysham
Hysham, Montana 59038

Hon. Robert E. LaFountain
Mayor, City of Lewistown
Lewistown, Montana 59457

Hon. Ray Thrailkill
Mayor, City of Hamilton
Hamilton, Montana 59840

Hon. Ray Shipman
Mayor, Town of Ismay
Ismay, Montana 59336

Hon. Fred A. Brown
Mayor, City of Libby
Libby, Montana 59923

Hon. Jeff Roberts
Mayor, City of Hardin
Hardin, Montana 59034

Hon. R. E. Baumann
Mayor, Town of Joliet
Joliet, Montana 59041

Hon. Edgar C. Spry
Mayor, Town of Lima
Lima, Montana 59739

Hon. Harold R. Magnuson
Mayor, City of Harlem
Harlem, Montana 59526

Hon. Mary Ann Engdahl
Mayor, Town of Jordan
Jordan, Montana 59337

Hon. Bernard G. Ebert
Mayor, City of Livingston
Livingston, Montana 59047

Hon. Oscar Biegel
Mayor, City of Harlowton
Harlowton, Montana 59036

Hon. Mark R. Haynes
Mayor, Town of Judith Gap
Judith Gap, Montana 59453

Hon. Pete Plenty Hawk
Mayor, Town of Lodge Grass
Lodge Grass, Montana 59050

Hon. Norris Hyatt
Mayor, City of Havre
Havre, Montana 59501

Hon. Norma E. Happ
Mayor, City of Kalispell
Kalispell, Montana 59901

Hon. E. L. Seel
Mayor, City of Malta
Malta, Montana 59538

Hon. Kathleen Ramey
Mayor, City of Helena
Helena, Montana 59601

Hon. Kenneth Hannon
Mayor, Town of Kevin
Kevin, Montana 59454

Hon. Leo Clinton
Mayor, Town of Manhattan
Manhattan, Montana 59741

Hon. Joe Raunig
Mayor, Town of Hingham
Hingham, Montana 59528

Hon. Larry D. Herman
Mayor, City of Laurel
Laurel, Montana 59044

Hon. Robert French
Mayor, Town of Medicine Lake
Medicine Lake, Montana 59247

Hon. L. F. Alfaro
Mayor, City of Glendive
Glendive, Montana 59330

Hon. Clyde Sage
Mayor, Town of Hobson
Hobson, Montana 59452

Hon. Lewis Nelson
Mayor, Town of Grass Range
Grass Range, Montana 59032

Hon. Joseph Erchul
Mayor, Town of Hot Springs
Hot Springs, Montana 59845

Hon. Charles L. Lane
Mayor, Town of Ravalli
Ravalli, Montana 59860

Hon. John C. Bolen
Mayor, City of Great Falls
Great Falls, Montana 59401

Hon. G. G. Taylor
Mayor, Town of Hysham
Hysham, Montana 59032

Hon. Robert E. Lafountain
Mayor, City of Lewistown
Lewistown, Montana 59457

Hon. Ray Thomlinson
Mayor, City of Hamilton
Hamilton, Montana 59840

Hon. Ray Sutman
Mayor, Town of Ismay
Ismay, Montana 59336

Hon. Fred A. Erwin
Mayor, City of Libby
Libby, Montana 59923

Hon. Jeff Roberts
Mayor, City of Moran
Moran, Montana 59034

Hon. R. C. Bauman
Mayor, Town of Joliet
Joliet, Montana 59041

Hon. Edgar E. Sutz
Mayor, Town of Lima
Lima, Montana 59739

Hon. Harold E. Moncrean
Mayor, City of Plentywood
Plentywood, Montana 59254

Hon. Mary Ann Trudeau
Mayor, Town of Jordan
Jordan, Montana 59941

Hon. Bernard G. Ebert
Mayor, City of Livingston
Livingston, Montana 59047

Hon. Oscar Stegel
Mayor, City of Marlboro
Marlboro, Montana 59059

Hon. Mary R. Haynes
Mayor, Town of Judith Gap
Judith Gap, Montana 59453

Hon. Pete Plenty Wave
Mayor, Town of Lodge Grass
Lodge Grass, Montana 59050

Hon. Morris Nyatt
Mayor, City of Havre
Havre, Montana 59501

Hon. Norma E. Hoop
Mayor, City of Kalispell
Kalispell, Montana 59901

Hon. E. L. Seed
Mayor, City of Malta
Malta, Montana 59538

Hon. Kathleen Ramey
Mayor, City of Whitefish
Whitefish, Montana 59937

Hon. Kenneth Hannon
Mayor, Town of Kevin
Kevin, Montana 59454

Hon. Les Clinton
Mayor, Town of Manhattan
Manhattan, Montana 59741

Hon. Jack Ranney
Mayor, Town of Hingham
Hingham, Montana 59528

Hon. Larry D. Hirman
Mayor, City of Laurel
Laurel, Montana 59044

Hon. Robert French
Mayor, Town of Medicine Lake
Medicine Lake, Montana 59247

COMPLAINT

Air Quality Bureau ( )
Water Quality Bureau ( )
Environmental Services Bur. ( )
Occupational Health Bureau ( )

DATE 11-16-76 TIME 10:40 a.m.

RECEIVED BY Nita Olsen

COMPLAINANT Kathy Williams

ADDRESS Helena Valley

PHONE NO. 458-5314

NATURE OF COMPLAINT: WHO Frank Flatt

WHAT Garbage and diapers strewn all over yard

WHEN Continuously

WHERE Helena Valley - 830 Rinay Road

WHY

REFERRED TO: Les Cramer FOR ACTION.

SUGGESTED ACTION:

4/17/72--2000

LEWIS AND CLARK
CITY-COUNTY HEALTH DEPARTMENT

TELEPHONE 442-6230

201 SOUTH LAST CHANCE GULCH
HELENA, MONTANA 59601

CERTIFIED MAIL

June 22, 1976

Mr. William D. Morton, Jr.
5305 N. Montana Avenue
Helena, Montana 59601

Dear Mr. Morton:

I have received a complaint from Lewis & Clark County Commission regarding improper disposal of dead animal carcass (es). Upon visiting the site located about 5 feet within your northeast property boundary, I have determined that partially exumed remains of a dead animal are indeed a public nuisance, and a public health hazard. Under provisions of Montana Law, Section 69-4518, Subsections 1 & 2, you are directed to abate this nuisance by either removing all of the dead animal carcasses, or by insuring that they are covered (buried) by at least two (2) feet of earth.

Additionally, in regard to the junk vehicles on your property, you must either remove these, or they must be properly screened from public view. Also, because of the number (4 or more) of junk vehicles on your property, you will be required to be licensed as a motor vehicle wrecking facility, should you decide to keep them, and must comply with that section of the law (M.A.C. Section 69-6801-6810 and Rule 16-2.14 (2)-S14261).

Should you wish to dispose of these junk vehicles, Lewis and Clark County can, at no expense to you, pick up and dispose of them. I am enclosing several release forms for that purpose; if titles are not procurable, these forms will serve as proper substitutes. Please return to our office, or to County Commissioners office.

If you have any questions, please feel free to contact us.

Yours very truly,

Les Cramer R.S.

Les F. Cramer, R.S.
City-County Sanitarian

LFC:lh
Enclosures
cc: Art Woods, Chairman, Lewis & Clark County
Terrance Carmody, Chief, Solid Waste Bureau

M E M O R A N D U M

March 16, 1976

TO: Al Thelen, City Manager

FROM: Budget & Evaluation Office

SUBJECT: Sanitation Report

The City of Helena through its solid waste program provides residential, commercial, and bulky waste collection services to most residents and businesses of Helena.

The City of Helena began efforts in January, 1975, to improve productivity in the sanitation collection program. The productivity improvements were directed at reducing collection costs and improving the method of collection by using plastic bags and an incentive program. This report reviews the direction the program has taken after 12 full months of operation. The program is evaluated here on the basis of the general guidelines established by the City Commission.

Major findings are:

Advantages

1. The annual cost savings of $65,000 has resulted in deferring for at least another 12 months an increase in residential rates.
2. The objectives established by the City Commission have all been substantially met during the course of this demonstration.
3. Conditions relating to sanitary handling of waste and environmental conditions have improved.
4. Accident rate of City residential collection crews has significantly dropped.
5. Employees participating in the incentive program have increased their productivity and seem to have a much higher morale.

M E M O R A N D U M

March 16, 1976

To: Al Thelen, City Manager

From: Budget & Evaluation Office

Subject: Sanitation Report

The City of Helena through its solid waste program provides residential, commercial, industrial, yard and lawn services to over residences and businesses on Helena.

The City of Helena began efforts in January, 1976, to improve productivity in the sanitation collection process. The productivity improvements were directed at reducing collection costs and improving the methods of collecting by using plastic bags and an incentive program. This report contains the direction the program has taken after 12 full months of operation. The program is evaluated here on the basis of the general objectives established by the City Commission.

Major findings are:

Advantages

1. The annual cost savings of $63,000 has resulted in rate cutting for at least another 12 months an increase in residential rates.
2. The objectives established by the City Commission have all been substantially met during the course of this demonstration.
3. Conditions relating to sanitary handling of waste and environmental conditions have improved.
4. Accident rate of city, commercial collection crew has significantly dropped.
5. Employees participating in the incentive program have increased their productivity and seem to have a much higher morale.

6. Commercial service is now being paid for on the basis of service received.

Major Disadvantages are:

1. Residential collection reduced from twice weekly to once weekly.
2. The chronic problem of dogs and garbage became more apparent.
3. Nine city employees eliminated during a time of high unemployment.
4. Commercial crews are excluded from participating in the incentive program causing lower morale.

Beginning early in the budget preparation of FY74, the staff identified a serious trend developing in the solid waste collection service. This trend was basically related to the increasing costs of providing a service that was fast approaching deficit levels. That is, the revenue generated from customer fees was far below what was needed to provide the level of service customers were accustomed to receiving. Thus, making this service a prime target for productivity improvement and cost benefit consideration. At this point, staff identified several factors responsible for rising costs such as number of collection routes, cost of personal services, frequency of collection, equipment maintenance, capital costs, and inflation. Further, it was necessary to examine the customer service charges so as to determine the extent of increase necessary to provide the level of service citizens had become accustomed to. It was pointed out during the budget process that revenue projections for the Sanitation Department for 73-74 were $3,336 more than the projected expenditures would be. However, it was noted that no funds had been set aside for capital equipment cost. Therefore, the real deficit for the year would amount to $52,864.

It was at this point that the City Commission was presented with two Sanitation service alternatives: (1) accept current service which would require an increase in the annual assessments to residential customers by $6.00 per year or 50¢ a month and charge commercial customers on an actual time to serve basis to generate enough revenue to break even, or (2) choose the alternate of plastic bags and once a week service without a change in residential rates, but assess commercial customers on an actual time to serve basis. The service that

the City Commission chose was the plastic bag and once a week concept with a purpose of demonstrating that cost benefits could be derived from certain changes to the Solid Waste program.

The objectives of this choice were:

1. Reorganization of residential collection crews from four crews to two crews.
2. To reduce frequency of collection from twice to once weekly.
3. To purchase and distribute every 16 weeks plastic bags to residential customers which would be used as a liner for refuse containers.
4. Establish commercial rates based on actual time to serve.
5. Develop an incentive program for residential crews designed to increase their motivation and productivity.
6. Defer for at least two years increasing the residential collection rate.

Residential collection was made twice weekly by 4 crews consisting of one driver and two pickup men. Collection was made from 30-gallon containers provided by the customers placed either next to his residence or in the alley behind his residence. Our collection budget at that time included 25 fulltime employees and 6 collection vehicles. Four routes were scheduled so that each crew worked a collection route four days a week. During the fifth workday of each week, the crews policed their collection routes, made repairs to containers they may have damaged and provided bulky waste service that they weren't able to collect during their normal collection. One crew also filled in for the commercial collection crew because commercial collection was provided six days per week.

The City Commission chose was the plastic bag and came a week concept with a program of demonstrating that most popularity could be derived from certain changes to the solid waste program.

The objectives of this choice were:

1. Reorganization of residential collection crews from four crews to two crews.

2. To reduce frequency of collection from twice to once weekly.

3. To purchase and distribute every 1½ weeks plastic bags to residential customers which would be used as a liner for refuse containers.

4. Establish commercial rates based on actual time to serve.

5. Develop an incentive program for residential crews designed to increase time-motivation and productivity.

6. Defer for at least two years increasing the residential collection rate.

Residential collection was made twice weekly by 4 crews consisting of one driver and two pickup men. Collection was made from 32-gallon containers provided by the customer placed either next to his residence or in the alley behind his residence. Our collection ended at that time required 23 trips to the dump and 4 collection vehicles. Four routes were established so that each crew worked a collection route four days a week. During the fifth workday of each week, the crews picked up only collection routes, made repairs to containers, they may have damaged and provided bulky waste service that they weren't able to collect during their normal collection. One crew also filled in for the commercial collection crew because commercial collection was provided six days per week.

Commercial collection was handled by one 3-man crew. Bulky waste collection was handled by a 2-man crew. Some commercial sites were served six days per week while others were serviced less often depending on the amount of refuse.

During this new project, the residential collection crews were reduced from 4 to 2 crews, which resulted in the elimination of 9 positions and 2 collection trucks. The phase-out of these positions was handled through the attrition process and took one year to accomplish. The reduction of manpower amounts to annual costs savings of $109,000* to the customers. In addition, by reducing the number of trucks required by 2 has netted an annual replacement savings of $14,000. This is computed by taking the replacement cost of these vehicles in today's market which is estimated to be 35,000 multiplied by 2 vehicles and amortized over a five year period.

Note: * $84,000 salary for 9 employees
25,000 benefits for 9 employees
$109,000

The employee cost savings was computed on the basis of what the 9 employees would have been paid given no change in service utilizing the current pay and classification plan.

Commercial collection was handled by one 3-man crew. Bulky waste collection was handled by a 2-man crew. Some commercial areas were served six days per week while others were serviced less often, depending on the amount of refuse.

During this new program, the residential collection crews were reduced from 4 to 2 crews, which resulted in the elimination of 9 positions in the collection crews. The observant of trash operations was helped through the mechanical process and took one year to accomplish. The reduction of manpower results in annual payroll savings of $104,000 by the end of 1985. In addition, by reducing the number of trucks required by 2 has allowed an annual replacement savings of $14,000. This is computed by taking the replacement cost of these vehicles in 1984 $ dollars which is estimated to be $70,000 amortized by 2 vehicles and amortized over a five year period.

Note: $94,000 salary for 9 employees
$70,000 benefits for 9 employees
$164,000

The employee cost savings was computed on the basis of what the 9 employees would have been paid given no change in service utilizing the current pay and classification plan.

AVERAGE MONTHLY SOLID WASTE QUANTITIES

	OLD Jan-Dec. 1974				NEW Jan-Dec. 1975			
	Hours Worked	Hours on Route	Hours on Haul	Tons Collected	Hours Worked	Hours on Route	Hours on Haul	Tons Collected
Residential	1675	1389	285	666	934	739	183	646
Commercial	572	499	73	295	685	587	97	352
Bulky	570	421	149	126	279	205	74	97
	2817	2309	507	1087	1887	1531	354	1095

The chart indicates that the amount of refuse collected increased only slightly during the period, which seems to be consistent with the growth rate in Helena, particularly in the commercial category.

During the period of January - December 1974, there were four residential collection crews consisting of 4 trucks and 12 men with twice a week collection and one commercial crew consisting of one truck and 3 men. Under that system each collection crew was averaging 650 stops per day and collecting an average of 9 tons.

The residential collection crews were reorganized to two crews consisting of 2 trucks radio equipped and 6 men with once a week collection. Under this system each crew is averaging 730 stops per day and collecting an average of 17 tons per day.

The frequency of residential collection as stated above was decreased from twice weekly to once weekly utilizing one-way disposable containers (plastic bags).

The chart reflects substantially the reorganization. Hours worked decreased approximately 1,000 per month between the two years, yet fewer crews continued to collect approximately the same number of tons per month. Hours on route also

MONTHLY SOLID WASTE COMPARISONS

	CY Jan-Dec. 1976						SWM Jan-Dec. 1975			
	Tons Weighed	Hours Spent Hauling	Tons Collected	Hours Per Ton Collected	Tons Weighed	Hours Spent Hauling	Tons Collected	Hours Per Ton Collected
Residential	1695	1398	285	4.91	934	771	183	4.21
Commercial	571	149	73	2.03	695	567	97	5.84
Bulky	370	411	149	2.76	279	205	74	2.77
	2637	2057	507	4.06	1887	1531	354	4.32

The chart indicates that the amount of refuse collected increased only slightly during the period, which seems to be consistent with the growth rate in Helena. Productivity shows a significant decrease.

During the period of January - December 1976, there were four residential collection crews consisting of 4 trucks and 12 men with three a week collection and one recreational area, consisting of one truck and 2 men. Under this system each collection crew was averaging 450 stops per day and collecting an average of 5 tons.

The residential collection crews were reorganized to two crews consisting of 2 trucks equipped with a man with one a week collection. Under this system each crew is averaging 750 stops per day and collecting an average of 17 tons per day.

The frequency of residential collection as stated above was decreased from twice weekly to once weekly utilizing one-way dispos-ite containers (plastic bags).

The chart reflects substantially the reorganization. Hours worked decreased approximately 1400 per month between the two years. Yet tons crews continued to collect approximately the same number of tons per month. Hours on routes also

reflects a healthy decrease because 2 trucks were eliminated. Miles traveled per month decreased by approximately 1,000 going from an average 1,957 to 956. This resulted in an annual cost savings of $4,700 in fuel costs alone. Normal maintenance on these vehicles such as oil, lube, tune-up parts, filters, etc., amounted to approximately $45.00 per month or an annual savings of $540.00. Major repairs to these same vehicles averaged about $166.00 per month or an annual cost savings of approximately $4,000.00.

INCENTIVE PROGRAM

Employees within the Sanitation Department were somewhat skeptical about this new service in its early stages. A change from twice weekly to once weekly and the elimination of overall 9 positions within the Department presented a management problem for effective crew scheduling of once a week collection program. It was obvious that a four-day collection week appeared to be the best solution. But to make the program viable to the men, an incentive program was developed and offered to them by staff. It was found that the personnel were quite interested in working with staff to develop criteria for the incentive plan. As a result, the incentive plan was implemented early in 1975 and basically consisted of $5.00 per day per man (residential crews only) if certain criteria was met during the collection day or a total annual cost of $6,240 per year.

During the monitoring period of 1975, payroll records indicated that on three separate occasions one crew failed to meet the incentive criteria and lost the pay for that three day period. This statistic indicates that the incentive criteria was met by each residential crew 98% of the time. In regards to this statistic it becomes questionable whether proper daily

reflects a healthy decrease because 2 trucks were eliminated. Miles traveled per month decreased by approximately 1,000 going from an average 1,857 to 857. This resulted in an annual cost savings of $4,700 in fuel costs alone. Normal maintenance on these vehicles such as oil, tires, tune-up parts, filters, etc., amounted to approximately $15.00 per month or an annual savings of $540.00. Major repairs on these same vehicles averaged about $145.00 per month or an annual cost savings of approximately $4,000.00.

INCENTIVE PROGRAM

Employees within the Sanitation Department work a somewhat unusual shift but new service in the early stages. A change from twice weekly to once weekly and the elimination of overall positions within the Department prompted a management decision for effective new scheduling of once a week collection procedure. It was obvious that a fourth day collection would appear to be the best solution. But to make the program viable in the mind, an incentive program was developed and offered to them by stating it was found that the personnel were quite interested in working with about to develop ruffits for an incentive plan. As a result, the incentive plan was implemented early in 1978 and basically consisted of $3.00 per day per man (assistance needed only) if certain criteria was met during the policing day at a total annual cost of $9,240 per year.

During the monitoring period of 1979, payroll records indicated that on three separate occasions the crew failed to meet the incentive criteria and lost the day for that week-day period. This statistic indicates that the incentive criteria was met by each residential crew one of the times. In regards to this statistic it becomes questionable whether paying $3.00 per day

evaluation was given by responsible departmental individuals to determine the extent of each crew's criteria achievement. In response to this question, Mr. Lewis felt uncertain about the degree or level of evaluation given by his staff in determining to what extent the criteria was being met. Mr. Lewis has indicated that he personally has taken the primary responsibility of monitoring the incentive program criteria against daily residential crew collection performance. However, it is recommended that the Public Services Director play a larger role in evaluating the incentive program on at least a monthly basis.

Also implemented along with the incentive plan was the use of plastic bags. The cost attributable to plastic bag utilization has increased operating costs by $61,000 annually. Together, the utilization of the incentive plan, plastic bags, radio communication, and with the vast majority of the households in the community utilizing the bags has collectively contributed to an annual cost savings of $65,000 over operations using 1974 collection methods.

With any change in the scope of a municipal service there are bound to be inherent problems.

One problem identified while reviewing sanitation records was that sufficient plastic bag distribution records were not being kept up to date. It was found that during the first delivery period of 1975 that 6,890 packages of bags were distributed to the residential customers; however, only 6,690 customers were assessed for this service. This then means that 200 packages of bags or $600 is unaccountable and therefore should be considered a loss. The primary reason for this seems to be an insufficient inventory control and a general lack of communication between the Water Accounting Office, which is charged with disbursing plastic bags to new water hook-up

evaluation was given by responsible department individuals to determine the extent of each case's criteria satisfaction. In response to this question, Mr. Davis felt uncertain about the degree or level of evaluation given by his staff in determining to what extent the criteria was being met. Mr. Davis has indicated that he personally has taken the weekly responsibility of monitoring the incentive program criteria on the daily reminders sent by injection performance. However, it is recommended that the Public Services Director play a larger role in evaluating the incentive program so it insure a monthly basis.

Also implemented along with the incentive plan was the use of plastic bags. The cost savings to plastic bag utilization has increased operating costs by $61,000 annually. Together, the utilization of the incentive plan, plastic bags, radio communications, and with the wage reduction, of the moderates in the community utilizing the bags has collectively contributed to an annual cost savings of $63,000 over operations using 1974 collection methods.

With any change in the scope of a municipal service there are bound to be inherent problems.

One problem identified during reviewing evaluation records was that consistent plastic bag distributors received complaints being kept in the dark. It was found that during the first delivery, a total of 1,23 that 6,000 packages of bags were distributed to the residential customers. However, only 1,[illegible] customers were assessed for this service. This implies that 203 packages of bags or [illegible] were unaccounted and therefore should be considered a loss. The primary reason for this was to be an insufficient inventory control and a general lack of communication between the Water Accounting Office, which is charged with discovering private bags to use water meter-up

customers, and Don Lewis, the Sanitation Supervisor. Because of this oftentimes new customers are receiving the collection service but are not being assessed immediately.

The employees who have responded to the incentive program with increased productivity have, however, also expressed the opinion that a method should be found to include the commercial crew in the incentive program. While such inclusion cannot be justified under the original purpose of the incentive program, this suggestion should be considered on the basis of maintaining the morale of all the collection crews.

With the adoption of the plastic bags on the residential routes, the chronic problem of dogs and garbage became more apparent. To address this problem, the patrol of the Animal Control Officers was coordinated with the residential collection routes and observation of dogs by the collection crews were transmitted to the animal control officers through the supervisor. In spite of these efforts, dog vandalism of garbage continues to hamper residential collection. The continued efforts of the animal control officers is required. To the extent that the public can be encouraged to place garbage in the alleys only shortly prior to collection as opposed to a daily basis throughout the week, this problem could be reduced.

Nationally, garbage collection is the highest risk public service operation in terms of accident rate. Thus, safety of garbage collection crews must be a major goal of every department. Since the adoption of the plastic bags and the incentive plan, the accident rate for the City's collection crews have significantly dropped, going from 10 accidents in 1974 to 0 in 1975. In spite of this improvement, safety continues to be a major concern of the crews. Two areas need continued attention:

customers, and Don Lewis, the sanitation supervisor. Because of this efforts new customers are receiving the collection service but are not being assessed immediately.

The employees who have responded to the incentive program with increased productivity have, however, also expressed the opinion that a method should be found to include the commercial crew in the incentive program. That's such inclusion cannot be justified under the original purpose of the incentive program, this suggestion should be considered on the basis of maintaining the morale of all the collection crews.

With the advent of the pigeon days of the residential routes, the chronic problem of dogs and barking, barking dogs appears. To address this problem, the Board of the animal control officers was coordinated with the residential collection routes and observation of dogs by the collection crews were transmitted to the animal control officers through the supervisor. In spite of these efforts, dog vandalism and barking continues to hamper residential collection. The continued efforts of the animal control officers is required. In the course the public can be encouraged to place garbage in the alleys only, shortly prior to collection a request to a daily press throughout the week, this problem could be removed.

Nationally, garbage collection is the highest risk public service operation in terms of accident rate. The safety of garbage collection crews must be a major concern of every commissioner since the adoption of the pigeon days and the incentive plan the accident rate for the City's collection crews have consistently dropped. Note, from 10 accidents in 1974 to 8 in 1975. In spite of this improvement, safety continues to be a major concern of the crews. Two areas need continued attention

(1) alleys must be maintained free of obstacles to the access of the men and trucks; overhanging limbs and wires and projections from buildings pose special hazards. (2) the 8 trucks and 330 garbage containers must be maintained in the highest state of repair possible.

Overall, it can be concluded that the employees have responded well to the change in collection procedure and the implementation of the incentive program. For this reason it can be expected that if additional new procedures are attempted the department would again respond well.

Overall, the objectives established by the City for the new program have been substantially met during the course of its demonstration. In addition, the quality of service, conditions related to sanitary handling of waste, employee morale, and employee safety have all significantly improved.

SUMMARY OF NET ANNUAL SAVINGS

Expenditure Classification	Annual Cost Savings	Annual Cost Increases	Annual Net Savings
Incentive Pay	-0-	6,240	(6,240)
Personnel Costs	109,000	-0-	109,000
Gas & Oil Costs	4,700	-0-	4,700
Minor Tune-up Costs	540	-0-	540
Major Repairs Costs	4,000	-0-	4,000
Equipment Replacement Reserve	14,000	-0-	14,000
Plastic Bags Costs		61,000	(61,000)
	132,240	67,240	65,000

(1) alleys must be maintained free of obstacles to the access of the men and trucks; overhanging limbs and wires and projections from buildings pose special hazards. (2) the 6 carts and 210 garbage containers must be maintained in the highest state of repair possible.

Overall, it can be concluded that the employees have responded well to the changes in collection procedure and the implementation of the incentive program. For this reason it can be expected that if additional new procedures are employed the department would again respond well.

Overall, the objectives established by the City for the new program have been substantially met during the course of its demonstration. In addition, the quality of service conditions related to sanitary handling of waste, employee morale, and employee safety improved significantly over.

Summary of Net Annual Savings

Expenditure Classification	Annual Costs Savings	Annual Costs Increases	Annual Net Savings
Incentive Pay	-0-	6,240	(6,240)
Personnel Costs	109,000	-0-	109,000
Gas & Oil Costs	4,700	-0-	4,700
Minor Tune-up Costs	240	-0-	240
Major Repairs Costs	4,000	-0-	4,000
Equipment Replacement Reserve	14,000	-0-	14,000
Miscellaneous Costs		61,000	(61,000)
	132,240	67,240	65,000

In conclusion, a net savings of $65,000 annually has deferred the necessity of increasing residential collection rates during the past 12 months.

The budget projection for next fiscal year indicates that the rate increase can be deferred for at least another 12 month period. This is based upon no significant changes in the operational methods of the Department and no significant increase in the number of customers to be served.

The data contained in this report came chiefly from Sanitation records kept during the periods assessed. Other records included City monthly payroll and budget reports.

In addition, interviews were conducted with C. R. Hanson, Public Services Director; Don Lewis, Sanitation Supervisor; and 12 employees of the Sanitation Department.

Exhibit I - Incentive Program Criteria

Exhibit II - Vehicle Inventory

Exhibit I

COMMISSIONERS
DON M. HARRIOTT, MAYOR
KATHLEEN RAMEY
ARTHUR W. SCRIBNER
EDWARD P. LORANZ
HARLEY WARNER

CITY MANAGER'S O
CIVIC CENTER
HELENA, MONTANA
AREA CODE 406/442-

City of Helena, Montana

November 21, 1975

INCENTIVE PROGRAM

Routes to be completed within the designated areas with a minimum amount of complaints reported from residents.

Residential crews and commercial crews will be required to cleam up any and all litter problems caused by dogs, wind or residents.

Two valid complaints in any one day will cause the incentive pay for that day for the entire crew to be lost.

Four complaints in one week will cause the incentive pay for that week for the entire crew to be lost.

Incentive pay, $5.00 per man per day on residential collection days only, will be based also on route completion and employee attitude. Any and all complaints will be investigated immediately by the Supervisor and a determination made as to the validity of each complaint.

Once a week collection will begin on January 20, 1975. Residential collection will be on Monday through Thursday, Friday being the clean-up day.

Both residential trucks will be collecting in the same area at the same time each day.

Saturday night's commercial route will be alternated between the two residential crews, the commercial crew and a crew made up of the relief personnel.

Residential crews and commercial crews will be required to clean up any and all litter problems caused by dogs, wind or residents.

ANIMAL CONTROL

Control Officers will be patrolling in the area of collection each day. Radio calls by the collection crews will be made to the Sanitation Department base station or to the Supervisor. Problem dogs will then be reported to the posice station and the Animal Control Officer will respond.

The residential trucks will have cages constructed so the crew men in some cases can contain animals until the Animal Control officer arrives.

Minutes by Don Lewis, Sanitation Superintendent D. Lewis

In attendance at this meeting were:

Exhibit II

SANITATION DEPARTM
125 Henry
HELENA, MONTANA
area code 406 / 442-99

City of Helena, Montana

March 17, 1976

SANITATION DEPARTMENT

VEHICLE. INVENTORY

COLLECTION

1976 International, Diesel	25 cubic yard 2-R Leach Packer
1975 Dodge , "	20 " " Leach Sanicruiser
1974 " "	" " " " "
1970 " "	" " "
1960 International Gasoline	" " " 820 CarWood Leach PackMaster

BULKY WASTE

1970 Ford Gasoline	1 1/2 Ton Flatbed Dump Truck
" " "	" " " " "

DISPOSAL SITE

One Caterpillar Model 816	Landfill Compacter
One Caterpillar Model 977	Track Loader

SUPERVISORS

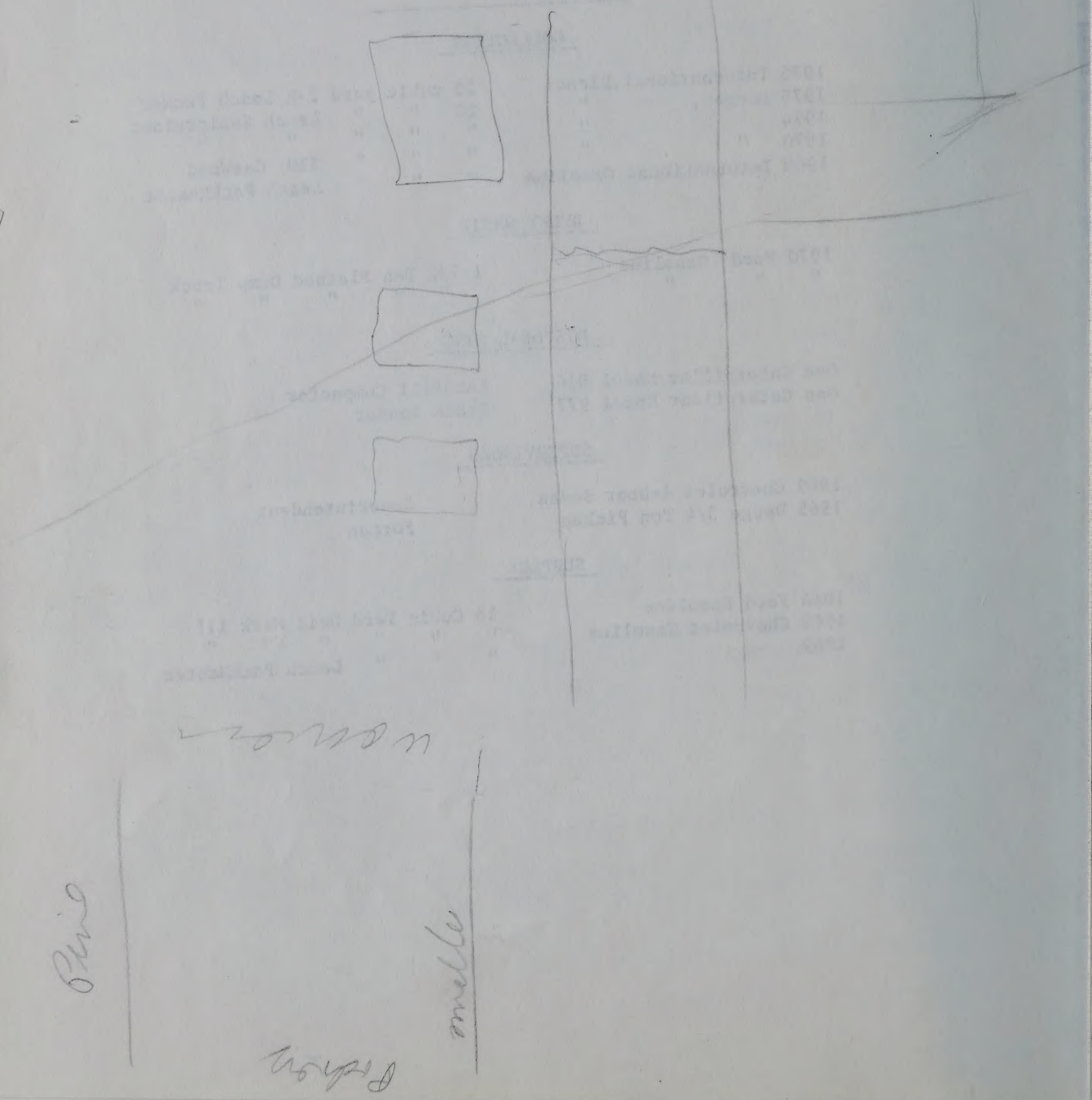
1969 Chevrolet 4-Door Sedan	Superintendent
1965 Dodge 3/4 Ton Pickup	Forman

SURPLUS

1964 Ford Gasoline	16 Cubic Yard Heil Mark 111
1962 Chevrolet Gasoline	" " " " " "
1969	" " " Leach PackMaster

732

1964
4
5856



Solid Waste Management Bureau
1424 9th Avenue
Helena, Montana 59601
Telephone: (406) 449-2821

March 17, 1975

Mr. Al Thelan
City Manager
City of Helena
Helena, Montana 59601

Dear Mr. Thelan:

On February 21 and February 28, 1975, I conversed with Don Lewis concerning the progress and eventual northward movement of the Helena city sanitary landfill. There have been a number of complaints concerning future plans to move the landfill site and operation between the main tracks of Burlington Northern. I suggested to Mr. Lewis that before any plans for movement take place, a complete analysis of the proposed area must be conducted and reviewed by both the Soil Conservation Service and this Department. As you know, a diversion pipe had to be laid under the present site and will undoubtedly be required in the proposed area.

The analysis must include a complete groundwater depth study, soils limitations study, permeability rates, slope limitations, and a declaration on any future degradations to the area if it is landfilled.

We can only recommend this as you will have to request the SCS to conduct such a study. It is imperative that the analysis be completed before any plans are made to move into this area as this analysis is required by the solid waste law and regulations of Montana.

It appears that due to the number of complaints received about this future site, a strict operation and a more indepth site analysis prior to implementation will be needed.

If we can be of assistance to you in any way, please feel free to contact this office. We are at your service.

Sincerely,

Harvey E. Moen, R.S.
Solid Waste Management Bureau
Environmental Sciences Division

HEM:sss

cc: Dave Thomas, County Sanitarian, 201 So. Last Chance Gulch, Helena
Don Lewis, City of Helena, Street & Sanitation Dept., Civic Center, Helena

L&C

COMPLAINT

Air Quality Bureau ( )
Water Quality Bureau ( )
Environmental Services Bur. ( )
Occupational Health Bureau ( )

DATE Jan. 27, 1973 TIME 10:30 A.M

RECEIVED BY HEM

COMPLAINANT Gene Hoffman

ADDRESS Helena

PHONE NO.

NATURE OF COMPLAINT: WHO City of Helena

WHAT plastic garbage bags (biodegradability)

WHEN

WHERE using for garbage disposal (why were they

WHY not being instituted.

REFERRED TO: ~~Don Lewis~~ Myself FOR ACTION.

SUGGESTED ACTION: Call Don Lewis for more clarification on the matter

4/17/72--2000

2 sc

COMPLAINT

Air Quality Bureau ( )
Water Quality Bureau ( )
Environmental Services Bur. ( )
Occupational Health Bureau ( )

DATE 16 Jan 74 TIME 10:10

RECEIVED BY H E Moser

COMPLAINANT H T O'Reilly

ADDRESS Helena

PHONE NO. 458-3298

NATURE OF COMPLAINT: WHO City of Helena

WHAT putting in a landfill

WHEN soon

WHERE E/K River & Main street near Cracks

WHY for refuse disposal

REFERRED TO: FOR ACTION.

SUGGESTED ACTION: they have acquired lease from BN and supposedly are looking to put this site into Referred To Dave Thomas and he will be looking into the situation before they trench into the area.

4/17/72-2000

HELENA, - LEWIS & CLARK

Department of Health and Environmental Sciences

STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

Solid Waste Management Bureau
1424 9th Avenue
Helena, Montana 59601
Telephone: 449-2821

December 30, 1974

This letter is written to inform you of a growing problem facing all communities - land available for solid waste disposal.

The State Department of Health and Environmental Sciences, Solid Waste Management Bureau, as well as the county health departments in Montana, work continually to assist communities in acquiring land for solid waste disposal. Both private and public land have become almost impossible to acquire. Soon condemnation will remain the only avenue to provide communities with land for refuse disposal. We contend that the only way to provide land for refuse disposal is through planning; therefore, we are contacting you to inform you of the growing problem.

Somehow long-range land use plans should provide for actual purchase or acquisition of land for refuse disposal. This might provide you, the city, county, or city-county planning board, a way of depicting progress for grants and to show how much money you save the community by assisting in land provision for refuse disposal.

We can only continue to inform you of this problem and hope that you can assist by including this as a priority concerning each one of us.

Sincerely,

Terrence D. Carmody

TERRENCE D. CARMODY, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

TDC/sss

V. R. Uttke, Chairman
Baker Planning Board
Baker, MT 59313

David Smith, Chairman
Ennis Planning Board
Ennis, MT 59729

John J. Daley, Pres.
Laurel Planning Board
1102 Sunhaven Dr.
Laurel, MT 59044

Leonard Sundell, Pres.
Billings Planning Board
1434 Granite Avenue
Billings, MT 59101

Ken Smith, Chairman
Fort Benton Planning Board
1608 St. Charles
Fort Benton, MT 59442

Robert White, Pres.
Lewistown Planning Board
Rt. 2, Spring Creek Rd.
Lewistown, MT 59457

Gerald Goldenstein, Pres.
Bozeman Planning Board
South of Bozeman
Bozeman, MT 59715

Manson Baily, Jr., Pres.
Glasgow Planning Board
Box 832
Glasgow, MT 59230

Fred Brown, Pres.
Libby Planning Board
1119 Dakota Avenue
Libby, MT 59923

Ed Aubert, Chairman
Browning Planning Board
Browning, MT 59417

Frederick Dion, Chairman
Glendive Planning Board
803 Meade
Glendive, MT 59330

Ray Hedrick, Chairman
Livingston Planning Board
424 W. Clark
Livingston, MT 59047

W. Earl Hasbrouck, Pres.
Great Falls Planning Board
Box 1125 (Milligan Rt)
Great Falls, MT 59403

Russell Shore, President
Miles City Planning Board
1101 S. Lake
Miles City, MT 59301

Charles A. Kestle, Pres.
Butte Planning Board
2501 Harrison Avenue
Butte, MT 59701

Dr. William Jellison, Pres.
Hamilton Planning Board
504 South 3rd
Hamilton, MT 59840

Richard Ainsworth, Pres.
Missoula Planning Board
Box 298
Missoula, MT 59801

George Hanson, Chairman
Col. Falls Planning Board
Highway 2 S, Box 417
Columbia Falls, MT 59912

Roland Croghan, Chairman
Hardin Planning Board
206 Maverick Rd.
Hardin, MT 59034

Ronald Oldis, Chairman
Polson Planning Board
506 11th Ave. E
Polson, MT 59860

Robert Noe, President
Columbus Planning Board
Absarokee, MT 59001

Clarence Olson, Chairman
Harlem Planning Board
418 2nd Ave. SE
Harlem, MT 59526

Harry L. Axtmann
Poplar Planning Board
433 2nd Ave. W
Poplar, MT 59225

Ron Bokma, President
Conrad Planning Board
Conrad, MT 59425

Robert Nault, Chairman
Havre Planning Board
Box 1756
Havre, MT 59501

Elmer G. Duncan, Pres.
Red Lodge Planning Board
403 N. Platt
Red Lodge, MT 59068

Joe Meagher, President
Cut Bank Planning Board
403 East Main
Cut Bank, MT 59427

Craig Winterburn, Pres.
Helena Planning Board
4385 Wylie Dr.
Helena, MT 59601

Byron Kluth, President
Shelby Planning Board
250 O'Haire Blvd.
Shelby, MT 59474

Glen Kenison, President
Deer Lodge Planning Board
223 Rumsey
Anaconda, MT 59711

Charles Hash, President
Kalispell Planning Board
Route 2, Greenacres
Kalispell, MT 59901

Harold Mercer, Chairman
Sidney Planning Board
115 2nd Ave. SE
Sidney, MT 59270

Solid Waste Management Bureau
1424 9th Avenue
Helena, Montana 59601
Telephone: (406) 449-2821

December 20, 1974

Pete McHugh Jr.
McHugh Lane
Helena, Montana 59601

Dear Mr. McHugh:

It has been called to our attention that cow carcasses have been improperly disposed of on what appears to be the northwest corner of your property, west of the 4700 block of McHugh Lane. Surface disposal of animal carcasses not only poses a nuisance and causes odors; but also poses a potential health hazard. Dogs, cats, flys, and other scavengers can serve as means of spreading disease agents contracted from the animal carcasses.

While state law does not preclude disposal of animal carcasses on private property, guidelines for carcass disposal have been adopted by this state to prevent public health hazards and nuisances.

The carcasses need to be buried at least four feet above the water-table and under a minimum of two feet of earth, or taken to either of the Sanitary Landfills in the Valley where facilities are available for carcass disposal. A period of thirty days from the post mark of this letter should be sufficient to allow you to have the problem remedied. We will check the problem-site on January 31, 1974.

Sincerely,

Craig Brawner, R. S.
City-County Sanitarian

CB/nls

CC: Solid Waste Bureau

December 20, 1974

Pete McHugh Jr.
McHugh Lane
Helena, Montana 59601

Dear Mr. McHugh:

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While state law does not preclude disposal of animal carcasses on private property, guidelines for carcass disposal have been adopted by this state to prevent public health hazards and nuisances.

The carcasses need to be buried at least four feet above the water-table and under a minimum of two feet of earth, or taken to either of the Sanitary Landfills in the Valley where facilities are available for carcass disposal. A period of thirty days from the post mark of this letter should be sufficient to allow you to have the problem remedied. We will check the problem-site on January 31, 1975.

Sincerely,

Craig Kramer, R. S.
City-County Sanitarian

CB\nle

cc: Solid Waste Bureau

Solid Waste Management Bureau
1424 9th Avenue
Helena, Montana 59601
Telephone: (406) 449-2821

June 14, 1974

Ms. Elaine Crowe
Operational Planning Staff
General Services Administration
Building 41
Denver Federal Center
Denver, Colorado 80225

Dear Elaine:

Per our telephone conversation, please find enclosed a copy of our law and regulation pertaining to the operation of sanitary landfills.

In reference to the operation of the City of Helena's landfill, it is a very good site. It is operated as closely as possible to the guidelines established by the Environmental Protection Agency in their publication titled "Sanitary Landfill Design and Operation."

If you need further documentation in reference to the operation of this landfill, please let me know and I will be happy to oblige.

Sincerely yours,

TERRENCE D. CARMODY, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

TDC:ao

Enclosures

Solid Waste Management Bureau
1520 5th Avenue
Helena, Montana 59601
Telephone: (406) 449-2821

June 13, 1979

Ms. Elaine Crowe
Operational Planning Staff
General Services Administration
Building 41
Denver Federal Center
Denver, Colorado 80225

Dear Elaine:

For our telephone conversation, please find enclosed a copy of our law and regulation pertaining to the operation of sanitary landfills.

In reference to the operation of the City of Helena's landfill, it is a very good site. It is operated as closely as possible to the guidelines established by the Environmental Protection Agency in their publication titled "Sanitary Landfill Design and Operation."

If you need further documentation in reference to the operation of this landfill, please let me know and I will be happy to oblige.

Sincerely yours,

TERRENCE D. CAVANOGH, CHIEF
Solid Waste Management Bureau
Environmental Sciences Division

TDC:ao

Enclosures

COMMISSIONERS
STEPHEN F. KEIM, MAYOR
ARTHUR W. SCRIBNER
EDWARD P. LORANZ
DON M. HARRIOTT
KATHLEEN RAMEY

WALTER ANDERSON
CITY MANAGER

City of Helena, Montana

CITY MANAGER
CIVIC CENTER
HELENA, MONTANA 59601
AREA CODE 406/442-6850

July 18, 1973

Capitol Animal Clinic
1301 Airport Road
Helena, Montana 59601

Gentlemen:

Please be advised that the Helena City Commission has taken action to prohibit the disposal of animal carcasses of cows, horses, pigs, and sheep at the old dump site.

The City will accept small animals for disposal at the land fill. Check with Don Lewis at 442-9921.

Yours truly,

Walter Anderson
City Manager

cc: State Board of Environmental Sciences
City County Board of Health
Bob Hanson
Don Lewis
Chief Williams (Gary Bright)

COMMISSIONERS
STEPHEN F. KEIM, MAYOR
ARTHUR W. SCRIBNER
EDWARD P. LORANZ
DON M. HARRIOTT
KATHLEEN RAMEY

WALTER ANDERSON
CITY MANAGER

CITY MANAGER
CIVIC CENTER
HELENA, MONTANA 59601
AREA CODE 406/442-6850

City of Helena, Montana

July 17, 1973

Dr. Robert Painter
2930 N. Montana Avenue
Helena, Montana 59601

Dear Dr. Painter:

Please be advised that the Helena City Commission has taken action to prohibit the disposal of animal carcasses of cows, horses, pigs, and sheep at the old dump site.

The City will accept small animals for disposal at the land fill. Check with Don Lewis at 442-9921.

Yours truly,

Walter Anderson
City Manager

cc: State Board of Environmental Sciences
City County Board of Health
Bob Hanson
Don Lewis
Chief Williams (Gary Bright)

cc Terry Carmody

Office Memorandum

MONTANA STATE DEPARTMENT OF HEALTH

TO : Don Holtz

DATE: June 26, 1973

FROM : Clark Neilson

SUBJECT : Burning of tires at the city landfill area north of Helena

The tires were set afire Sunday night. The fire department was called out but the fire was so hot it could not be extinguished. Assistant city manager, Don Kearn, was called out who in turn called a city work crew. A large amount of the tires were separated and placed in a separate pile some 25 yards away from the burning pile. Monday, the scene was viewed by the county sheriff, county sanitarians, assistant fire chief, and the city manager of landfill operations, Don Lewis. The source of the fire was undetermined.

Don Lewis and Assistant Fire Chief Bob Killeen left the scene of the fire about 1:30 p.m. No other persons were there when they left. About 15 or 20 minutes later the large pile of tires that had been separated were afire. Again, the person setting the fire is unknown. The sheriff's office and state fire marshall's office are investigating.

The city has agreed that tires will no longer be dumped at that site which is separate from the regular landfill. This will eliminate the possibility of a reoccurrance. All tires will now be hauled to the regular landfill and covered with dirt each day.

Persons contacted in my investigation are:

John Brockway, Helena Fire Chief
Bob Killeen, Assistant Helena Fire Chief
Don Lewis, Helena Landfill Manager
Don Kearn, Assistant Helena City Manager
Keith Trafton, Les Kramer, County Sanitarians
Brain Roat, Assistant State Fire Marshal

Helena

State of Montana

State Department of Health

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

HELENA, MONTANA 59601

October 19, 1972

This letter is to call your attention to the fact that solid waste management is one of the areas that will be eligible for revenue sharing funds. We strongly urge you to consider solid waste management in your planning program. This money could be used to get a refuse disposal district off to an excellent start. It could also be used for a district or municipality that is struggling with the initial starting expenses or much needed improvements.

The State Department of Health and Environmental Sciences now has all communities in Montana with a population of 1,000 or more on a deadline of July 1, 1973 to have a sanitary landfill operation. Looking to the near future, we expect all communities, regardless of size, will be required to have their refuse site in a location that will meet state regulations and have some means of orderly maintenance.

If this office can be of any further help, feel free to contact us.

Sincerely yours,

Terrence D. Carmody

Terrence D. Carmody, Project Coordinator
Solid Waste Program
Environmental Sciences Division

TDC:ao

Helena

State of Montana

State Department of Health

JOHN S. ANDERSON, M.D.
EXECUTIVE OFFICER

HELENA, MONTANA 59601

August 5, 1970

TO: MAYOR AND CITY COUNCILMEN

Gentlemen:

The law that controls refuse disposal areas, Section 69-4001 through 69-4010, RCM, 1947, has been in existence since 1965. The Board of Health has decided that it was time this law was enforced. On July 11, 1970, the Board of Health established a deadline of July 1, 1971 for those sites that serve populations of 4,000 and over and a July 1, 1972 deadline for those sites that serve populations of 2,500 to 4,000. It is not their intent to ignore those sites that serve lesser populations. It will only be a matter of time before these smaller sites will also have to comply with this law.

The major problem that smaller sites have in complying with this law is one of financing. This problem was realized by the legislators in 1969; therefore, they passed the law that allows county commissioners to create refuse disposal districts, Section 69-6001 through 6011, RCM, 1947. This law gives incorporated communities in the proposed district the choice of being included in the district or excluded.

By creating these districts and including in these districts the smaller incorporated communities, it is possible to include in most cases enough family residential units from which to draw funds to maintain the necessary disposal sites. If smaller communities are going to have proper disposal sites, we believe it is going to be necessary for them to be included in these districts. Therefore, we recommend that your community consider joining with the county commissioners in the establishment of these districts. A suggested procedure for implementing the districting law is enclosed.

If this department can be of any assistance in assessing your needs and helping to develop the program, we will be more than happy to give whatever assistance that personnel and time will permit.

Sincerely yours,

Mary E. Soules

Mary E. Soules, M.D.
Acting Executive Officer

MES:TDC:ao

Enclosure

State of Montana

State Department of Health

JOHN W. MADDEN, M.D.
DIRECTOR OF HEALTH

HELENA, MONTANA 59601

August 5, 1970

TO: MAYOR AND CITY COMMISSION

Gentlemen:

The law that controls rural sewer disposal areas, Section 69-4001 through 69-4004, RCM, 1947, has been in existence since 1965. The Board of Health has decided that it is time this law was enforced. On July 13, 1970, the Board of Health established a deadline of July 1, 1971 for those areas that serve populations of 4,000 and over and a July 1, 1972 deadline for those areas that serve populations of 2,500 to 4,000. It is our hope that towns to ignore these sewer laws have population. It will only be a matter of time before smaller areas will also have to comply with this law.

The major problem that smaller areas face in complying with this law is one of financing. This problem was realized by the legislature in 1969; therefore, they passed the Rural Sewer Improvement Districts to assist rural disposal districts, Sections 67-6001 through 6004, RCM, 1947. This law gives incorporated communities in the proposed district the choice of being included in the district or excluded.

By creating these districts and including in these districts the smaller incorporated communities, it is possible to include in most cases enough family residential units from which to draw funds to maintain the necessary disposal sites. If smaller communities are going to have proper disposal areas, we believe it is going to be necessary for them to be included in these districts. Therefore, we recommend that your community consider joining with the county commissioners in the establishment of these districts. A suggested procedure for implementing the districting law is enclosed.

If this department can be of any assistance in conducting your needs and helping to develop the program, we will be more than happy to give whatever assistance they necessary and time will permit.

Sincerely yours,

Mary E. Sullivan

Mary E. Sullivan, M.D.
Acting Executive Officer

MES:JDC:ac

Enclosure

59601

16 July 1969

AG

Mr. Walter Anderson
City of Helena
Helena, Montana 59601

Dear Mr. Anderson:

Reference is made to your request of July 15 for right of entry on National Guard property west and north of the Helena Armory.

There would be no objection by this Department to granting access as required to complete the solid waste disposal project provided such use does not interfere with our own use of the driveway and parking space and, further, that the project when completed will not cause the armory and armory property to be less desireable for state use than it is at present.

If you will have the proper legal documents prepared to accomplish the necessary easement, with the above stipulations, I shall be glad to approve your request.

As to future development of the area we would very much like to see some landscaping and other beautification undertaken. If any development is contemplated which would result in use by large numbers of the public, then consideration should be given to providing access at some point more distant from the busy intersection of Lyndale and North Main.

We have no immediate plans for further development of state-owned land surrounding the armory. Considerable study would be required by this and other departments of state government before any recommendation could be made regarding disposition. The final outcome would be dependent upon action by the State Legislature.

I shall arrange for representatives of this Department to meet with you or your representatives if you want to pursue this any further.

Sincerely,

JOHN J. WOMACK
MG, Mont NG
The Adjutant General

Lewis & Clark

November 29, 1968

Walter Anderson, City Manager
City of Helena
Helena, Montana 59601

Dear Mr. Anderson:

This will acknowledge receipt of your letter of November 27 relative to the relocation of the landfill from its present site to the area behind the armory.

If the City of Helena will operate this landfill in the proper manner with absolutely no burning, and covering each day, we would see no problems. In fact it will set an example for other municipalities showing what can be accomplished with proper management.

With the above stipulations, your plan for the proposed change is herewith approved.

Sincerely yours,

John S. Anderson, M. D.
Executive Officer

JSA:CMB:cp

cc: Katherine E. Dawson, M. D., Lewis and Clark County Health Officer, Helena
James M. Peterson, R.S., City-County Sanitarian, Helena

City of Helena

MONTANA

OFFICE OF
CITY MANAGER

November 27, 1968

C. W. Brinck, Director
Environmental Sanitation
State Board of Health
Helena, Montana

Dear Mr. Brinck:

Since becoming City Manager I have been concerned with our garbage problem and feel that this portion of our services to the public could be improved. My first concern was the land fill operation, you were aware of this situation so it need not be reviewed. The City terminated the contractor August 31 and we have been operating the land fill since that time. The conditions have greatly improved and I feel that we have complete control of the operation.

No cost figures are available and I have not had an opportunity to set up a cost accounting program, it is obvious that our garbage program is expensive. The location of the land fill has concerned me and after looking at what I thought was perhaps every possibility in the vicinity of the City it occurred to me that the old dump area behind the Armory was a possibility for several reasons. The haul distance for our packers could be reduced, an unsightly area eliminated and developed into an attractive park or recreation area or some other useful purpose that would be an asset to our City.

As you know Helena is involved in many Fedral Programs and one of the foremost ideas in the planning for the cities future is additional recreational facilities. This could easily become part of Helena's future.

We are in the process of puchasing a new front end loader for our land fill operation. I want to get a machine with adequate horse power and bucket capacity that could salvage fill material at the proposed location. It is my estimation that with proper management and operation that 2 to 3 years and perhaps more, cover material can be salvaged from the existing waste material.

The area has been inspected by your Terry Carmody and he concurs with my plans. I am writing you and requesting approval from you to go ahead with the development of this area. It is my plans to move into this area next Spring as soon as weather will permit. The present area will continue to be used for tires, car bodies and other refuse such as tree limbs, wood, etc.

An early reply will be appreciated.

Yours very truly,

Walter Anderson
City Manager

City of Helena
MONTANA
CITY MANAGER

November 27, 1968

C. W. Heinick, Director
Environmental Sanitation
State Board of Health
Helena, Montana

Dear Mr. Heinick:

Since becoming City Manager I have been concerned with our landfill problem and feel that this question of our services to the public could be improved. My first concern was the land fill operation, you were aware of this situation so it need not be reviewed. The City transferred the contractor August 31 and we have been operating the land fill since that time. This conditions have greatly improved and I feel that we have complete control of the operation.

No cost figures are available and I have not had an opportunity to set up a cost accounting program, it is obvious that our garbage program is expensive. The location of the land fill has concerned me and after looking at what I thought was garbage every possibility in the vicinity of the city it occurred to me that the old dump area behind the Armory was a possibility for several reasons. The land distance for our problems could be reduced, an unsightly area eliminated and developed into an attractive park or recreation area as some other useful purpose that would be an asset to our City.

As you know Helena is involved in many Federal Programs and one of the most ideas in the planning for the coming future is additional recreational facilities. This could easily become part of Helena's future.

We are in the process of purchasing a new front end loader for the operation. I want to put a machine with adequate horse power [illegible] capacity that could salvage fill. Mechanical at fill operation [illegible] by estimation that with proper management and operation that 2 [illegible] and perhaps more, cover machinal can be salvaged from the existing waste material.

The area has been inspected by your Terry Carnody and he concurs with my plans. I am working you and requesting approval from you to go ahead with the development of this area. It is my plan to move into this area next Spring as soon as weather will permit. The present area will continue to be used for tires, car bodies and other refuse such as tree limbs, wood, etc.

An early reply will be appreciated.

Yours very truly,

Walter Andersen
City Manager

1c

LAW OFFICES OF
LOBLE, PICOTTE & LOBLE
833 NORTH MAIN STREET
P. O. BOX 176
HELENA, MONTANA 59601

HENRY LOBLE
GENE A. PICOTTE
LESTER H. LOBLE II
PETER C. PAULY
WILLIAM G. STERNHAGEN

TELEPHONE 442-0070
AREA CODE 406

April 2, 1968

Montana State Board of Health
State Capitol
Helena, Montana

ATTENTION: Mr. Claiborne W. Brinck

In Re: Operation of Helena Landfill Dump

Dear Clay:

Enclosed for your information is a letter dated March 14, 1968, addressed to me from Mr. W. J. Leary, City Manager of the City of Helena. The enclosure is self explanatory.

With kindest regards, I am

Sincerely yours,

Gene A. Picotte

Gene A. Picotte

GAP-ah
Encl.

City of Helena
MONTANA
OFFICE OF
CITY MANAGER

November 27, 1968

C. W. Jenkins, Director
Environmental Sanitation
State Board of Health
Helena, Montana

Dear Mr. Jenkins:

Since becoming City Manager I have been concerned with our garbage problem and feel that this portion of our services to the public could be improved. My first concern was the land fill operation. You were aware of this situation so it need not be reviewed. The City terminated the contractor August 31 and we have been operating the land fill since that time. The conditions have greatly improved and I feel that we have complete control of the operation.

No cost figures are available and I have not had an opportunity to set up a cost accounting program. It is obvious that our package program is expensive. The location of the land fill has concerned me and after looking at what I thought was perhaps every possibility in the vicinity of the City it occurred to me that the old dump area behind the agency was a possibility for several reasons. The haul distance for our packers could be reduced, an unsightly area eliminated and developed into an attractive park or recreation area or some other useful purpose that would be an asset to our City.

As you know Helena is involved in many Federal Programs and one of the most ideas in the planning for the eighes future is additional recreational facilities. This could easily become part of Helena's future.

We are in the process of purchasing a new front end loader for our [illegible] operation. I want to put a machine with adequate horse power [illegible] capacity that could [illegible] my satisfaction that with proper management and operation that [illegible] garbage more, cover material can be salvaged from the existing [illegible].

The area has been inspected by your Terry Carroll and he concurs with my plans. I am writing you and requesting approval from you to go ahead with the development of this area. It is my plans to move into this area next Spring as soon as weather will permit. The present area will continue to be used for cars, car bodies and other refuse such as tires, limbs, wood, etc.

An early reply will be appreciated.

Yours very truly,

Walter Anderson
City Manager

Garbage
L&C

59601

January 16, 1967

Mr. M. W. Drazich
Project Manager
U. S. Department of the Interior
Bureau of Reclamation, Region 6
P. O. Box 1629
Great Falls, Montana 59401

Dear Mr. Drazich: Re: 400

This will acknowledge receipt of your January 10 letter to Dr. Anderson and our phone call today. This was regarding a joint meeting between your office and the City of Helena and us on January 20.

We agreed that the meeting should occur at 1:00 p.m. instead of 10:00 a.m. on January 20, and is to be conducted in the council chambers, City Hall, Helena. Your office is to be represented by Mr. Bruce Garlinghouse and Mr. William Ryan.

Thank you for arranging this meeting. I hope that the situation will be greatly clarified by this meeting.

Sincerely,

Lyle M. Fisher, Sanitarian
Division of Environmental Sanitation

LMF:cp

cc: Helena City Council, Helena, Montana

Mr. Brinck

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

REGION 6
UPPER MISSOURI PROJECTS OFFICE
P. O. BOX 1629
GREAT FALLS, MONTANA 59401

IN REPLY REFER TO: 400

JAN 10 1967

Claflins

Brim

452-6455

3350

John S. Anderson, M. D.
Executive Officer
State Board of Health
Helena, Montana

Dear Dr. Anderson:

Please refer to your letter of December 21, 1966, regarding ground-water conditions in the proposed sanitary landfill area for the City of Helena.

As suggested in the closing paragraph of your letter, it appears desirable for all interests to hold a joint meeting in order to clarify certain points and reach a mutual understanding. In this connection, our representatives will be available January 20, 1967, and we suggest that a meeting be held in Helena at 10 a.m. on that date.

If this meets with your approval, please advise where the meeting will be held.

Sincerely yours,

M. W. Drazich

M. W. Drazich
Project Manager

cc:
City Council, Helena
Regional Director, Billings, Attention: 400
Chief, Helena Valley-Crow Creek O&M Field Branch, Helena

Bruce Garlinghouse + Drainage engineer from Billings
Mr. Ryan, William 1/20/67 452-6455
1:00 PM Friday
Council Chambers
Garlinghouse

L + C

December 21, 1966

Mr. M. W. Drazich
Project Manager
Upper Missouri Projects Office
P. O. Box 1629
Great Falls, Montana 59401

Dear Mr. Drazich:

Thank you for your letter dated December 2, 1966, regarding ground water conditions in the sanitary landfill area for the City of Helena. In view of the information contained in your letter, I have had my staff make additional observations and have solicited further comments from them.

Mr. Lyle Fisher, State Board of Health Sanitarian, visited this area approximately twenty days after the ditch was closed. At that time, the water level was down about four feet from the highest level observed. Mr. Hunt, State Board of Health Public Health Engineer, and Mr. Fisher visited the area on December 16, 1966, and found the water level at that time approximately five feet below the high water mark. The water at this time is confined to the northwest area and is frozen. Apparently this will reduce any further drop this year. We will continue to observe this area for the next six months to determine exactly what may occur.

The ditches were examined by Mr. Hunt and Mr. Fisher also on December 16, 1966. Their observations indicate that the main ditch south of the pit is probably contributing significant amounts of water to the ground water in the area. Originally Mr. Fisher had assumed the lateral on the west side of the pit was the primary contributor to the water, but it now appears to be both ditches may be leaking water since there was no evidence of compacted earth fill in either ditch. They noted that high velocity had required large boulders for riprap adjacent to one drop structure in the west canal to prevent errosion so it is possible that this had destroyed the compacted earth liner which was part of construction ten years ago.

We realize the lining of these ditches is a costly procedure. We would not expect you to do this or ask for additional study if we did not feel there was a reasonable possibility that this would be beneficial to both you and the City of Helena.

There are some portions of your letter which we would like some information on. You mention numerous other contributors to the ground water level in this area. We are not aware of other contributors and would certainly be interested in these since it might give us an entirely different approach in solving this problem.

In addition, you state this cost would be difficult to justify since no agricultural lands are involved. Are we to understand that you consider agriculture the sole motivating factor as far as the Bureau of Reclamation is concerned? As far as expense goes, our staff estimated this pond contained between 4½ to 6 million gallons of water at the high water level. Since this is transient water and would represent only a portion of the total loss in this area, it would seem that considering a period of years might help justify the lining expense.

Mr. Dave Lewis, Mayor, has assured us that this area has been closely watched since Mr. Lunsford of the U. S. Public Health Service recommended it in May 1965. According to Mr. Lewis, this was not a problem until this Fall.

We appreciate your taking an interest in our problem. Perhaps many of the misunderstandings outlined above could best be explained if a joint meeting could be held between your office, our staff and the City Council. We will appreciate hearing from you concerning this.

Sincerely yours,

John S. Anderson, M.D.
Executive Officer

JSA:LMF:slj

cc: City Council, Helena

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION 6
UPPER MISSOURI PROJECTS OFFICE
P. O. BOX 1629
GREAT FALLS, MONTANA 59401

IN REPLY
REFER TO: 400

DEC 2 1966

Dr. John S. Anderson
Executive Officer
State Board of Health
Helena, Montana

Dear Dr. Anderson:

Please refer to your letter of October 6, 1966, regarding ground-water conditions in an abandoned gravel pit which the City of Helena proposes to use for sanitary landfill purposes.

We have reviewed the ground-water records which we maintain in the Helena Valley area and find that the water table in the vicinity of the gravel pit in question is approximately 20 feet below the ground surface.

The irrigation ditch referred to in your letter was lined with compacted earth lining during construction 10 years ago. Records maintained since that time indicate very limited losses from the ditch, and any contribution to the ground water in the area would be minor.

Records of operation of our main canal, lying south of the gravel pit, indicate some losses through the water season which no doubt contribute to the ground-water recharge. However, there are numerous other contributors to the ground water in that area, and lining of the main canal would have only limited effect in reducing water table elevations at the pit.

Canal lining is very costly and difficult to justify under conditions existing in the area in question, since no agricultural lands in the project are in any way affected. It is regrettable that the City purchased this landfill dump site before obtaining the approval of your board.

Sincerely yours,

M. W. Drazich

M. W. Drazich
Project Manager

cc:
Regional Director, Billings, Attention: 400
Chief, Helena Valley-Crow Creek O&M Field Branch, Helena

59601

October 6, 1966

Bureau of Reclamation
Helena Irrigation District
Helena, Montana 59601

Gentlemen:

We have reason to believe that an irrigation ditch located in Range 2 W., Township 10 N., Section 17, adjacent to the proposed sanitary landfill for Helena, Montana may be influencing the level of ground water in this area. Helena has purchased an abandoned gravel pit to be used as a sanitary landfill which is partially flooded. Since the adjacent ditch is unlined we felt that this might be raising the ground water table in this pit.

If you could see your way clear to run a feasibility study for this ditch we would certainly appreciate it. Any information which you might have concerning the ground water in this immediate area would also be of great help to us and we would appreciate receiving it.

Sincerely yours,

Gt Falls
45°2-64 55'
Bu. Rec. Hdq.

10

John S. Anderson, M. D.
Executive Officer

JSA:LMF:cp

J.A. Rawlings
Will analyze wells

Hele-a
~~[illegible]~~
Barbage

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGIONAL OFFICE
Region VIII
Room 9017 Federal Office Building
Denver, Colorado 80202

PUBLIC HEALTH SERVICE
Environmental Engineering
and Food Protection

May 27, 1965

John S. Anderson, M. D.
Executive Officer
Montana State Board of Health
Helena, Montana

copy retained by E.O.
6/1

Attention: Mr. C. W. Brinck

Dear Dr. Anderson:

Enclosed are six copies of the report on "Survey of Solid Waste Disposal, Helena, Montana," conducted on May 17, 1965. Would you please review the report, and if it meets with your approval, forward it to the Helena Health Council and other interested persons.

Sent 6-2-65

I hope the report will help to stimulate the city officials to improve their present disposal methods. I enjoyed meeting with you and members of your staff during my visit and am looking forward to my next visit.

Sincerely yours,

Lee Roy Lunsford

Lee Roy Lunsford
Regional Sanitary Engineer Consultant

Enclosures

SURVEY OF SOLID WASTE DISPOSAL
HELENA, MONTANA
May 1965

By

Lee Roy Lunsford
Regional Sanitary Engineer Consultant
Division of Environmental Engineering
and Food Protection
Public Health Service
DHEW Region VIII
Denver, Colorado

At the request of a Helena Health Council a survey was conducted on May 17, 1965, of the solid waste disposal methods employed by the City of Helena. The following people assisted in the survey:

Curly Leary, City Manager
Dave Lewis, City Councilman and incoming Mayor
Henry Jorgensen, Chairman, Helena Health Council
Dean Keith, City-County Sanitarian

The purpose of the survey was to review present solid waste disposal methods, visit sites for proposed sanitary landfill and make recommendations to the Helena Health Council.

Survey Observations

Refuse collected from homes and businesses in Helena is deposited in the city-owned dump located one mile beyond the northeast corner of the city limits. The disposal facility is operated as an open burning dump that covers approximately five acres. The site has been used for 25 years, and the amount of old, partially-burned refuse has accumulated until now the dump is 10 to 12 feet high. The city employs a man at $85.00 per month plus scavenging rights to supervise dumping and maintain the dump.

The method of operation is simply to dump the refuse on the existing mound of old refuse. The dump operator picks through the refuse for

salvage material and then burns the residue. At varying intervals of time, the city brings equipment to the dump to push the material over the edge and to cover the surface to provide a road bed for the trucks. The disposal site is a typical open dump in that garbage, wastes, foods, and vegetables from commercial food processing plants, small dead animals, and other putrescible and non-putrescible wastes are piled on the surface of the ground and partially burned. These wastes remain exposed for long periods of time and provide a constant source of food and ideal harborage for rodents. Exposed wastes also support large fly populations during the warm periods of the year.

Although Helena is not presently infested with the domestic Norway rats (rattus norvegicus) a comprehensive investigation conducted by representatives of the Communicable Disease Center, Public Health Service, from 1944 to 1955 indicated that they were migrating from eastern Montana and Lewistown area into the remaining part of the State. The rat invasion of eastern Montana has demonstrated that by reason of their high biotic potential and their adaptability to different environmental conditions, rats are capable of spreading across extensive areas in which the situations are marginal for them. In view of this information, it is believed that at some future date Helena will experience difficulties with the domestic Norway rats.

Since open dumps are the greatest obstacle to the success of rat control programs, and often result in a condition impossible to control, it is imperative that the present disposal methods in Helena be converted to a more satisfactory procedure.

In addition to the potential public health hazard caused by present dumps, the broken glass, tin cans, and other exposed rubbish, along with fire, smoke, odor, and blowing paper create a constant public nuisance.

Recommendations

In order to eliminate the public health hazards and nuisance problems currently or potentially associated with the disposal practices in Helena, it is recommended that:

1. The sanitary landfill method for solid waste disposal be initiated. A disposal site should be selected as soon as possible and plans developed to convert present disposal to sanitary landfill.
2. Operation and maintenance of the sanitary landfill be in accordance with accepted principles and practices. (Recommended principles and practices for sanitary landfills are given in the appendix.)
3. All exposed surfaces of the present dump should be covered with two feet of soil, compacted, graded and landscaped.

Site Selection

In anticipation that the city will in the near future change its disposal methods to sanitary landfill, a preliminary survey was conducted of five potential sites. From the limited information obtained, it is believed that the gravel pit located one-fourth of a mile from the present dump would be the most satisfactory site. It is approximately 16 acres in area, and is easily accessible. However, before the site is purchased, additional study should be made to determine the effect of a landfill on

In addition to the potential public health hazard posed by persons dumping, the dumping plants, rats, roaches, and other unwanted pests, along with flies, smoke, odors, and blowing paper create a nuisance, public attitudes.

Recommendations

In order to eliminate the public health hazards and nuisance problems currently or potentially associated with the disposal practices in Kalama, it is recommended that:

1. The sanitary landfill method for solid waste disposal be initiated. A disposal site should be selected as soon as possible and plans developed to improve present disposal to sanitary landfill.

2. Operation and maintenance of the sanitary landfill be in accordance with generally accepted and beneficial, Commonwealth criteria and practices for sanitary landfills (see plans in the appendix).

3. All external nuisances in the present dump should be controlled with the sanitary landfill, screened, graded and landscaped.

Site Selection

In anticipation that the city will be the sole bonafide dumper for this public service in sanitary landfill, a preliminary survey for evaluation of site potential exists. Even the limited information obtained, is of the utmost that the overall site located on a mile from the present dump would be the most satisfactory site. It is approximately 12 acres in area, and is easily accessible. However, before site is to be purchased, additional study should be made to determine the extent of a landfill on

the ground water.

If the gravel pit cannot be obtained, the next best alternative would be to use the city property at the present dump site. The trench-ramp method could be used very satisfactorily in this area. It would result in raising the elevation of the area approximately 4 feet.

The old Carson gravel pit and the gravel pit east of the airport appeared unsatisfactory because of high water tables. The area next to the golf course would not be satisfactory because the soil is too coarse for fill material.

In selecting a site, the following criteria should be used:

Length of haul: The ideal location on the basis of length of haul is the center of the refuse-producing area. This, however, is usually not practicable at the beginning of an operation due to lack of undeveloped land in such a location and to probable public disapproval to such a site. Because of lack of general public knowledge of sanitary landfill, it is usually best to begin an operation a discreet distance from populated areas.

Reclamation value of site: As its name implies, a completed landfill project will raise the previous elevation of the ground. Low-lying areas, ravines, and abandoned barrow pits are thus natural locations for a sanitary landfill operation. A well planned program may result in the reclamation of such lands for many beneficial community projects. Completed landfills have been used for golf courses, parks, parking lots, airports, runway extensions, and, in some instances, for building sites. In many instances, communities have leased land without cost for a sanitary landfill operation because the reclamation feature of the operation increases

the ground water.

If the gravel pit owner is reluctant, you may have alternative ways to see the city property at the present time site. The reservoir method could be used very satisfactorily in this area. It would result in making the elevation of the area considerably a fact.

The old Cleveland gravel pit was the gravel pit near of the airport expected unsatisfactory because of high water table. The open pace to the pit's area would not be satisfactory because the soil is too coarse for fill material.

In selecting a site, the following criteria should be used:

Nature of land: The land location on the basis of kinds of soil is the nature of the surface-protecting area. This, however, is usually not practicable as the beginning of an operation, but is left to conversion into by such a location and is provide public transport to such a site. Because of lack of general public knowledge of sanitary landfill, it is usually best to begin an operation a different distance from populated areas.

Environmental value of area: As its name implies, a sanitary landfill method utilizes the physical elevation of the ground. Incidental areas, swamps, and shoreline barren area are also natural locations for a sanitary landfill operation. A well placed dump on any tract in the vicinity of such areas for sanitary landfill operations. Condition conditions have been used for golf courses, parks, playing fields, airports, hunting sanctuaries, and, in some instances, for building sites. In any instance, consultation from local authorities must for a sanitary landfill operation because the reclamation theory of the sanitary landfill

the value of the land to its owner. However, in comparing the cost for land at various locations, the site affording the most efficient operation will be most desirable because in comparison with operational costs, land costs are apt to be insignificant.

Drainage: Natural surface runoff must be considered and, if it is to be changed as a result of raising the elevation of the area used for landfill, care must be taken so that the resulting damage to adjacent property does not occur. A completed fill should have a minimum slope of one percent to facilitate surface drainage. Also, the possibility of contaminating the ground water should be thoroughly analyzed before selecting a site. Climatic conditions may be of importance in the Helena area in choosing a site. In extremely cold climates, trench excavation and cover material may present a special problem. It may be necessary to excavate ahead of actual filling and to stockpile cover soil, sometimes protecting it from frosts with a mulch. During periods of rains some areas may become unusable, necessitating the use of alternate sites.

Soil Composition: The composition of the soil, including that to be used for cover material, is another important factor in site selection. The ideal soil for a sanitary landfill operation contains from 50% to 60% sand, with the balance being approximately equal amounts of clay and silt. A coarse soil condition will impair vehicular movement and may be difficult to move. It may also require a greater depth of cover to prevent rodent infestation. A soil containing large quantities of clay will present an operational problem during wet weather and under certain conditions it may tend to shrink and crack, thereby making it difficult to maintain a tight cover.

APPENDIX

Recommended Principles and Practices for Sanitary Landfills

A. Prior to inauguration of a sanitary landfill the following steps should be taken:

1. An accessible site of sufficient size should be selected as near as possible to the areas served. (It is generally estimated that one acre of land per year, excavated to a depth of about 6 feet is required for disposal of refuse from a population of 10,000 people.)
2. A topographic map of the proposed landfill site should be prepared, and the final elevations of the filled areas should be determined in the light of future use of the reclaimed land.
3. An all-weather access road should be provided to the landfill site.
4. Provision should be made to prevent contamination of surface and ground water.
5. An adequate water supply should be provided for fire, dust, and paper control.
6. An appropriate structure should be provided at the disposal site for tools and the storage and maintenance of equipment.

B. The following basic practices and principles should be adhered to in operating and managing the sanitary landfill:

1. The tractor operator and other employees who will be concerned with the sanitary landfill should be given adequate training to insure a sanitary and economical operation.

- 6 -

[illegible]

[illegible] and Equipment and Sanitary Facilities

A. Prior to the opening of a sanitary landfill the following items should be taken:

1. An adequate area of sufficient size should be acquired so as to be available to the [illegible]. (It is generally recommended that one acre, at least per year, [illegible] to a depth of about 6 feet is required for disposal of refuse from a population of 10,000 people.)

2. A topographic map of the proposed landfill site should be prepared, and the final [illegible] on the initial area should be determined in the light of future use of the [illegible] land.

3. An adequate water supply should be provided at the landfill site.

4. Provision should be made to prevent contamination of a [illegible] and ground water.

5. An adequate water supply should be provided for fire, [illegible] and paper control.

6. An appropriate [illegible] should be provided at the disposal site for tools and the storage and maintenance of equipment.

7. The following basic provisions and principles should be adhered to in operating and managing the sanitary landfill:

a. The central operating and other buildings [illegible] will be determined with the sanitary landfill should be given adequate [illegible] to insure a sanitary and [illegible] operation.

2. Adequate equipment should be provided for excavating and hauling earth, and compacting and covering refuse. (Tractor manufacturers can supply data on the type and size of equipment needed for a given sized community. A tractor with a capacity of 2 cubic yards is generally required for communities with populations of 15,000 to 30,000.)

3. Refuse should be compacted into cells 6 to 8 feet in depth. As the refuse is unloaded it should be spread and compacted on about a 30° ramp. Approximately 2-foot layers of loose refuse should be compacted at one time. Where fills deeper than 8 feet are desired, stages of cells should be constructed, one on top of the other, with at least a 6-inch layer of earth between cells. Where refuse is placed in trenches, the trenches should be excavated to a width of at least 1½ times that of the tractor and its equipment in order to permit thorough compaction over the entire surface of the refuse.

4. At the end of each day's operation, the compacted refuse on the surface and face of the ramp should be covered with a 6-inch layer of earth. The active face of the fill should be kept as small as possible in order to reduce the amount of earth needed to cover the day's compacted refuse.

5. The final earth cover on the surface and side slopes of the fill should be about 24 inches in depth.

6. Adequate drainage should be provided for the surface of the filled areas to prevent ponding and/or erosion by surface water. If the finished fill has a boundary side slope, the

5. Adequate equipment should be provided for generating and testing power, and workshops and testing rooms. Different equipments can supply data on the power and electrochemical equipment needed necessary. A beginning with a supply of 1 to 1½ years by commercial requests for consultants, with projections of 10,000 to 20,000.)

6. Various sizes: The proposed area ratio is 5 times in depth, or the ratio is indicated. It should be stored and transported in lower a 'ton' pure. Approximately 5-times layers of lower values should be stored in a row. While still dryer than a dry cell, the cathode, which is a mixture of manganese, and the other, such as zinc, a certain layer of water between which there is also in direct contact, the reaction occurs by contact in which of a layer of close than of the carbon and the manganese in order to prevent electrical contact with the carbon rods of the cathode.

7. At the end of each day's operation, the completed cells on the anodes and face of the rods should be covered with a thick layer of grease. The grease face of the cell should be kept as small as possible by order to reduce the amount of small cells on the anode surface.

8. The final seals cover on the anodes and also flows at the cell should be cover. A sealing is needed.

9. Adequate drainage should be provided for the storage of the Cells area to prevent undue water running by accident water. If the flooded cell has a boundary also stage, the

toe of the slope should end in a sand-and-gravel ditch to prevent ravelling of the toe and exposure of waste material to insects and rodents. Side slopes should be seeded to prevent erosion. A maintenance program should be carried out to insure prompt filling of cracks, depressions, and to prevent erosion of the surface and side slopes of the filled area.

7. A portable fence should be used to prevent paper and other light materials from being scattered by the wind.

8. Experience has demonstrated that scavenging may interfere with refuse disposal operations and result in an insanitary condition. Therefore, scavenging should not be permitted unless an economic appraisal shows that the activity is financially sound and can be carried out in such a manner that proper sanitation is maintained.

C. The following practices are suggested to facilitate operation of a sanitary landfill during periods of freezing weather:

1. The required number of trenches should be excavated before the ground freezes and the cover material stockpiled; the cover material should be worked, if wet, to insure drying before freezing; the stockpiled cover material should be insulated with leaves, straw, or similar material placed in the form of cells, with each cell being opened for cover material as needed.

2. If trenches cannot be excavated in advance of freezing weather, the area to be excavated should be plowed or scarified before

ing of this floor should use in a sand-and-gravel fabric to prevent water seeping up the sun and exposure of water material to insects and rodents. This floor should be sealed to prevent erosion. A mainstress pattern should be adopted and to insure proper utilize of cracks, dilapidations, and to prevent wetness of the surface and side slopes of the fluted area.

7. A portable floor should be used to prevent cages and other light material from being supported on the ground.

8. Experiments has approximated that overcrowding may increase with cause disposal operations and result in an unsanitary condition. Therefore, overcrowding should not be practiced unless an economic appraisal shows that the activity is financially sound and can be carried out in such a manner that proper sanitation is maintained.

9. The following practices are suggested to facilitate operation of a sanitary installation during periods of heavy weather:

1. The required number of trenches should be excavated before the ground freezes and the cover material stockpiled; the cover material should be sandy, if any, to insure drying before freezing; the stockpiled cover material should be insulated with boards, straw, or similar material placed in the form of walls, with each wall being covered the cover material as needed.

2. If trenches cannot be excavated in advance of freezing weather, the area to be excavated should be plowed or scarified before

the ground freezes and covered with leaves, straw, or other material. The cover material should be insulated as the trench is excavated.

D. The following practices are suggested to facilitate operation of a sanitary landfill during periods of wet weather:

1. A well-drained disposal site should be selected with sandy loam soil.
2. Planking, ashes, gravel, or similar material should be stockpiled for construction of a suitable road surface from the access road to the operational area of the fill.

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AREA CODE 406

April 2, 1968

Montana State Board of Health
State Capitol
Helena, Montana

ATTENTION: Mr. Claiborne W. Brinck

In Re: Operation of Helena Landfill Dump

Dear Clay:

Enclosed for your information is a letter dated March 14, 1968, addressed to me from Mr. W. J. Leary, City Manager of the City of Helena. The enclosure is self explanatory.

With kindest regards, I am

Sincerely yours,

Gene A. Picotte

Gene A. Picotte

GAP-ah
Encl.

City of Helena

MONTANA

OFFICE OF
CITY MANAGER

March 14, 1968

Mr. Gene A. Picotte
833 North Main Street
Helena, Montana

Dear Mr. Picotte:

Receipt is acknowledged of your letter of March 11,1968 regarding the Landfill Dump.

We have had the contractor on the dump complete the covering of the garbage in the dump area.

The wind condition will continually cause concern because if the wind is blowing when trucks are emptied there is no way to completely guard against the papers moving with the wind. A good portion of our trouble comes from papers from state agencies that have not been properly packaged.

Very truly yours,

W. J. Leary

W. J. Leary
City Manager

WJL:mc

March 11, 1968

City of Helena
Civic Center
Helena, Montana

ATTENTION: City Manager

In Re: City of Helena Landfill Dump

Gentlemen:

The State Department of Health, Division of Environmental Sanitation, has received several complaints from people who reside in the area of the Helena Landfill Dump facility. These persons are complaining bitterly about refuse being carried from the city facilities onto their properties by the wind. Investigation by the Division of Environmental Sanitation indicates that these complaints are well founded, and that remedial action by the City of Helena is imperative.

It appears that your landfill facility is not properly operated in that the refuse placed therein is not buried on a day to day basis as required by the applicable regulations. Everything indicates that proper attention to the operation of the facility on the part of the city and its contractor would readily correct the situation being complained of.

The matter has been referred to the undersigned as attorney for the State Board of Health, with instructions to call the matter to your attention as above set forth, and to request your cooperation in correcting the situation. The department, of course, does not wish to resort to enforcement procedures in a situation which can be resolved by the simple expedient of proper operation.

Will you please contact Mr. Claiborne W. Brinck at the State Board of Health, and advise him what the city of Helena intends to do about this situation. He and his Division will work with you in every way possible to expedite an immediate solution.

Sincerely yours,

Gene A. Picotte

GAP-sh

March 11, 1963

City of Helena
Civic Center
Helena, Montana

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Sincerely yours,

Gene A. Picotte

GAP-ab